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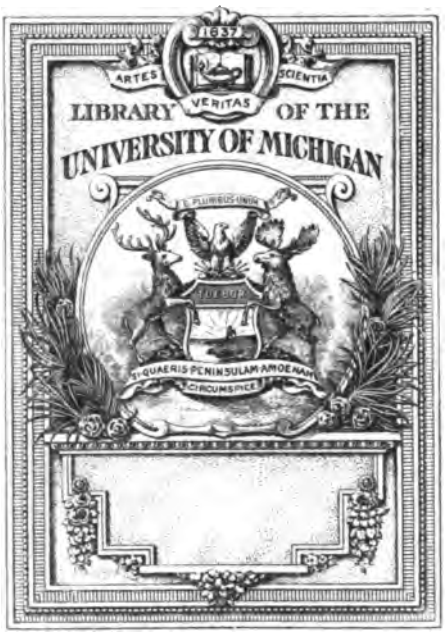
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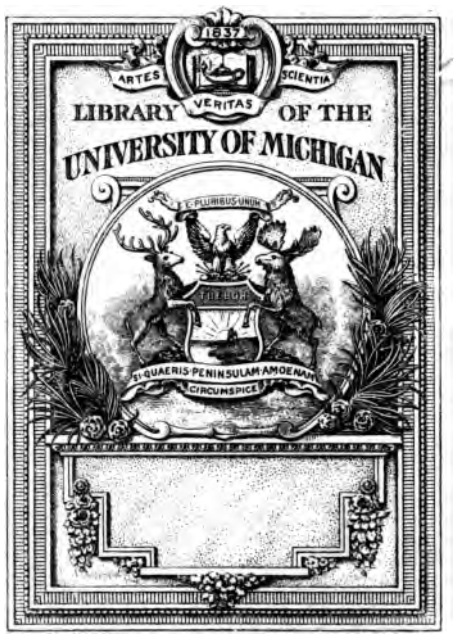
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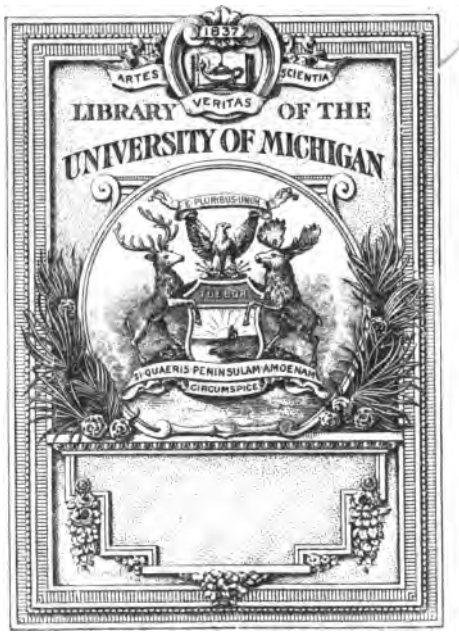
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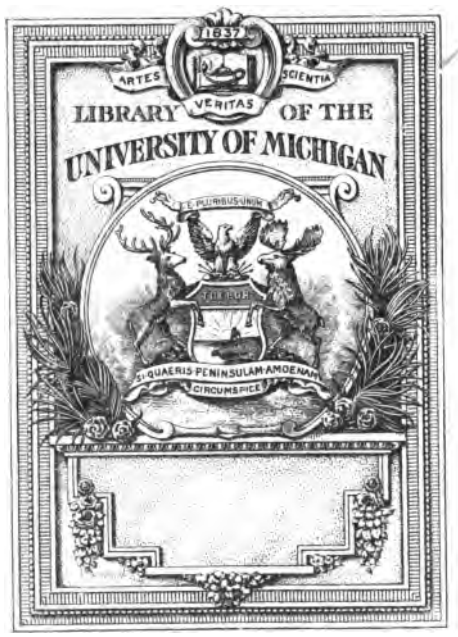
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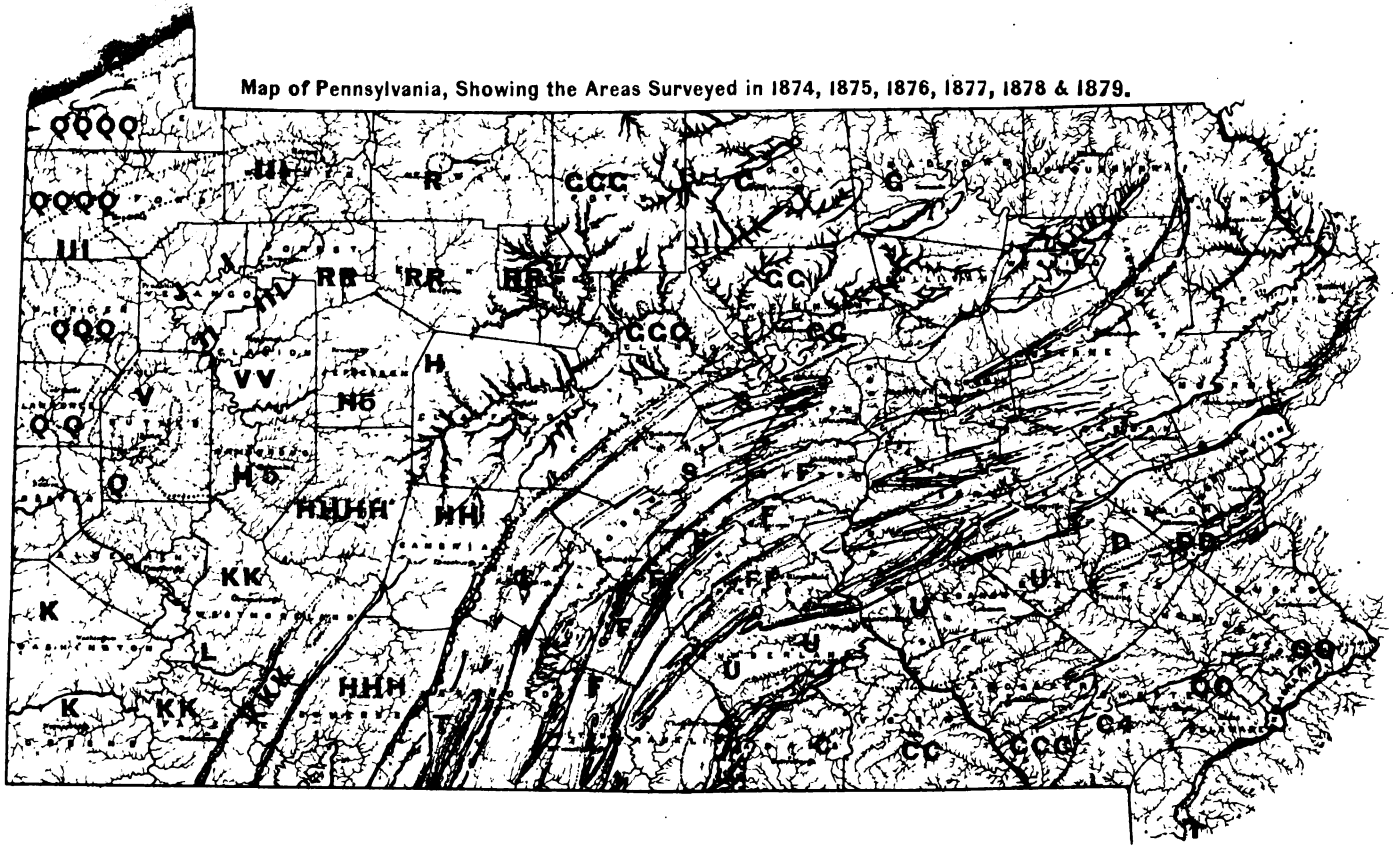
Map of Pennsylvania, Showing the Areas Surveyed in 1874, 1875, 1876, 1877, 1878 & 1879.

SECOND GEOLOGICAL SURVEY OF PENNSYLVANIA:
1878-'79-'80.

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47102

CATALOGUE

OF THE

GEOLOGICAL MUSEUM.

BY

CHARLES E. HALL.

PART II.

1. COLLECTIONS OF ROCK SPECIMENS.
Nos. 4265 to 8974.
2. PALÆONTOLOGICAL SPECIMENS.

HARRISBURG:
PUBLISHED BY THE BOARD OF COMMISSIONERS
FOR THE SECOND GEOLOGICAL SURVEY.
1880.

Entered, for the Commonwealth of Pennsylvania, in the year 1880, according to acts of Congress,

By WILLIAM A. INGHAM,

Secretary of the Board of Commissioners of Geological Survey,

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E. B. HARDEN—Topographer in charge of Office Work, &c. 1008 Clinton street, Philadelphia.

F. W. FORMAN—Clerk in charge of the Publications of the Survey, 223 Market street, Harrisburg.

CHARLES ALLEN—Aid.

PHILADELPHIA, *August 2, 1880.*

To His Excellency Governor HENRY M. HOYT,
Chairman of the Board of Commissioners of the Second Geological Survey of Pennsylvania:

SIR: I have the honor to present for your approval Mr. Charles E. Hall's continuation of the catalogue of geological specimens, arranged, labeled and bestowed in the museum of the Survey, up to date.

Previous to the close of 1877 Mr. Hall was aided by Mr. W. A. Fellows.

In 1878, 1879 and 1880 Mr. M. G. Carraher collected in the field during the summer months, and assisted in the museum during the winter months; aided by Mr. E. V. D'Invilliers, until the latter was detailed to carry on the topographical survey of the Easton-Reading range; and by Mr. N. A. Stockton in 1879.

Mr. Charles Allen was engaged in locating, numbering and mapping the rock exposures of the Philadelphia belt in advance of the collectors during the summer seasons of 1878 and 1879.

A system of approximately north and south cross sections was made by Mr. Hall through parts of Bucks, Montgomery, Philadelphia, Delaware and Chester counties, across the azoic belt; and the collections were made not only along these lines, but in the intermediate ground, for the purpose of differentiating the azoic formations, and tracing their several outcrops, to be described in his report.

The specimens are arranged according to these cross sections, lettered A, B, C, &c., beginning at Trenton, and proceeding westward towards Chester county.

The measurements between specimens given in the catalogue stand for the actual vertical (geological) rock-thickness—unless otherwise stated.

For chemical analyses of specimens references are made

to Reports of Progress of the Survey in which such analyses are published.

A *list of errata* in the preparation of the previous volume of the catalogue, Report O, will be found *at the end of this volume.* Those who own Report O can transfer said list to that volume.

An *index of geographical names* accompanies this volume; like the one provided for Report O.

A separate *catalogue of fossils* is appended, with its own index. There has been as yet no *systematic* collection of fossils made by the geologists of the survey; and the few fossils included in this catalogue were numbered under their respective formations, according to the old numbering of the First Survey, as they happened to be sent to the museum with ores and rocks from the different districts.

The force of the survey has been necessarily expended upon the study of the local mineral structure and resources of the several counties.

Until this onerous work was accomplished the study of the generic and specific characters of animal forms preserved in the rocks (a study of secondary importance in a region like Pennsylvania) had to be postponed. The vegetable palæontology of the coal measures, however, being of greater importance, has been carefully attended to; as the forthcoming report of Prof. Lesquereux (P) will show.

Mr. Hall, while in charge of the museum, and assiduous in its organization and arrangement, leaving nothing to be desired in that respect, undertook the very difficult task of exploring the azoic belt of the southeastern counties; and could not therefore make collections of fossils throughout the State.

This essential part of our work is left for the future, and I trust that the Legislature will secure its performance.

Very respectfully,

J. P. LESLEY.

TABLE

Showing the order in which the collections follow each other in the Catalogue.

Museum Numbers.	Collectors.
1–4264,	Published in Report of Progress O, 1878.
4265–4309,	P. Frazer, 1877.
4310 4456,	C. E. Hall, Section A, Delaware river.
4457–4974,	C. E. Hall, Section B, Neshaminy creek.
4975–5009,	C. E. Hall, New Red, Bucks county.
5010–5021,	C. A. Ashburner, McKean county, 1875.
5022–5046,	F. Prime, Jr., Lehigh river district, 1874–5.
5047–5087,	W. G. Platt, Cambria county, 1875.
5088–5120,	Miscellaneous Lithological Collection.
5121–5246,	Charles E. Billin, Centre, Union, &c.
5247–5374,	C. E. Hall, Section C, Poquessing creek.
5375–5448,	Miscellaneous Lithological Collection.
5449–5891,	C. E. Hall, Section D, Pennepack creek.
5892–6108,	C. E. Hall, Section E, North Pennsylvania R. R. and Tacony creek.
6109–6281,	C. E. Hall, Section F, Wissahickon creek.
6282–6335,	Miscellaneous Lithological Collection.
6336–6399,	P. Frazer, 1879, Lancaster and Chester cos.
6400–6532,	F. Prime, Jr., Lehigh district, 1874–5–8.
6533–6664,	J. H. Dewees, Juniata district, 1874 to 1879.
6665–6727,	F. Platt, northern Pennsylvania, 1877–8–9.
6728–6773,	W. G. Platt, trap dykes, 1877–9.
6774–6799,	J. J. Stevenson, Fayette, Westmoreland, 1877.
6800–6820,	I. C. White, Lawrence county, 1877.
6821–6847,	Ashburner, Chance and Frazer.
6848–7079,	J. Hartshorne.
7080–7099,	P. Frazer, Lancaster and Chester cos, 1879.
7100–7700,	C. E. Hall, Section G, Schuylkill river, Phila.
7701–7996,	C. E. Hall, Section H, Gulf and Cobb's creek.
7997–8077,	C. H. Hall, Section α, β, γ, δ, Chester valley.
8078–8238,	C. E. Hall, Section I, Chester creek.
8239–8291,	C. E. Hall, Section J, Brandywine creek.
8292–8391,	A. E. Lehman, Franklin and Adams counties.
8392–8519,	C. E. Hall, Hudson river, (for comparison.)
8520–8603,	P. Frazer, Chester county, 1879.
8604–8974,	Charles A. Ashburner, McKean, Forest, Elk.

EXPLANATION.

The labels and tickets glued and painted upon the specimens in the museum, can be understood from the following examples:

$\frac{232}{1}$ $\frac{232}{2}$ are *field labels;* 232 being a reference to the locality upon the map; 1, 2, &c., being the numbers of the several specimens collected at that locality.

$\frac{232}{A}$ $\frac{232}{B}$ &c., are *duplicates* of 232, &c., above.

1, 2, &c., on a *square green* ticket, a few specimens collected at localities 1, 2, &c.

$\frac{A}{54}$ on a *square green* ticket, means "specimen 54 on section line A."

$\frac{T}{130}$ on a *square geeen* ticket, means "specimen 130 of the collection made along the Little Juniata river, from Tyrone to Spruce creek."

150 on a *round green* ticket, means "specimen 150 of Mr. Carll's collection in the Oil region."

$\frac{230}{\text{blank}}$ on a *square red* ticket, means "specimen 230 of the Juniata district, sent in by Mr. Dewees."

$\frac{45}{AV}$ on a *square red* ticket, means "specimen 45 of Mr. Ashburner's Aughwick valley (Huntingdon county) sections."

$\frac{222}{3}\,\frac{G}{8}$ on a *square green* ticket, (a form used for a few specimens collected on sections G, H, I, J,) means "3 suites of specimens from locality G 222; this being specimen No. 8."

$\frac{X}{10}$ on a *square green* ticket, refers to specimen 10, on one of the short Chester county cross sections α, β, γ, δ.

$\frac{H}{10}$ on a *square green* ticket. Hudson river collections.

$\frac{105}{\text{blank}}$ on a *square white* ticket; fossil collection; 105= specimen No. 5 of No. I formation (Potsdam); 530=specimen No. 30 of No. V formation (Clinton;) 1301=specimen No. 1 of No. XIII formation (Coal Measures), &c.

CATALOGUE.

4266 to 4309—P. FRAZER—1877.

York, Adams and Lancaster.

4265, Magnetite—Fuller's mine 3 miles N. E. of Dillsburg, York co., Pa. (J. P. Lesley.)
4266, (2021,) Limonite bomb. C. B. Grubb's Bank. Chestnut Hill, Lancaster co.
4267, (2022,) Limonite bomb. Ditto.
4268, (2023,) Hematite. Ditto.
4269, (2024,) Testaceous limonite and ferruginous gneiss. G. Mower's mine 1 mile± S. W. of New Providence, Lancaster co.
4270, (2020,) Indian stone arrow heads. Mt. Johnson's Island, opposite Peach Bottom slate quarry.
4271, (2027,) Stalactites of calcareous matter. Viaduct Tape Worm R. R., 3 miles N. of Fairfield.
4272, (2028,) Hydro-magnesite on chromite. Wood's mine.
4273, (2029,) Deweylite. Ditto.
4274, (2030,) Garnet's. Underwood's mill, 1 mile± from Dillsburg, York co.
4275, (2031,) Native copper. Near Bigham's house, Philadelphia company's mine, 3½ miles±, N. by E. of Monterey Springs, Adams co.
4276, (2032,) Lignite. J. Liver's place, Mt. Pleasant township, Adams co.
4277, (2033,) Concretion of slate. Gotherd's tunnel ½ mile N. E. of Franklin Furnace.

4278, (2034,) Quartzite, with white plates of quartz and vein of limonite. Henry Clay Furnace, Lancaster co.
4279, (2035,) Manganiferous ochre, ½ mile E. by N. of Lamborn's house.
4280, (2036,) Slaty limestone 1700 ft. south of Susquehanna rolling-mill, on C. & P. D. R. R.
4281, (2037,) Limestone and slate. 1200 ft. S. of Susquehanna Rolling Mill.
4282, (2037,ᵇ) Limestone slate. 2000 ft. do.
4283, (2038,) Slaty limestone. 2100 ft. do.
4284, (2039,) Limestone slate. 2900 ft. do.
4285, (2040,) Slaty limestone. 3250 ft. do.
4286, (2041,) ditto. 3400 ft. do.
4287, (2042,) Limestone slate. 4550 ft. do.
4288, (2043,) Hydro-mica schist. 5000 ft. do.
4289, (2044,) Hydro-mica schist. 5200 ft. do.
4290, (2045,) ditto. 6450 ft. do.
4291, (2046,) ditto. 9060 ft. do.
4292, (2047,) Chloritic mica schist beside mica schist. Robt. Wood, Little Britain Twp., Lancaster Co.
4293, (2048,) Chloritic mica schist. Intersection of Maryland line by C. and P. D. R. R.
4294, (2049,) Feldspar dyke. In Maryland, near Bald Friars. Haines' land ±1½ miles S. of Pleasant Grove, Lancaster Co.
4295, (2050,) Chrysolite-Picrolite, and mica schist. 1 mile E. of New Texas.
4296, (2051,) Quartz film on weathered rock. Bald Hills, Haines' land, Maryland.
4297, (2052,) Chloritic mica schist.
4298, (2053,) Chloritic schist. 1 mile W. of Spring Hill, Little Britain Twp.
4299, (2054,) Dolerite. Fulton House, Lancaster Co.
4300, (2055,) Chloritoid. 1 mile E. of New Texas, at Sorghum Mill.
4301, (2056,) Arennaceous chlorite schist. Bed of Susquehanna river, opposite R. R. station, 139 A.

4302, (2057,) Fine-grained quartzose sandstone. ⅜ mile south of Unicorn.
4303, (2058,) Kyanite. 1 mile from Rawlinsville, Martic Twp., Lancaster Co. (Presented by Dr. Stubbs.)
4304, (2059,) Chrysalite and Picrolite. 2 miles E. of Wakefield, Lancaster Co. (Presented by Dr. Stubbs.)
4305, (2060,) Feldspar. 1½ miles south of Pleasant Grove.
4306, (2061,) Quartz sinter with quartz films. do.
4307, (2062,) Chlorite. ½ mile N. of Maryland line. C. & P. D. R. R.
4308, (2063,) Dolerite. Fulton House.
4309, Asbestus. Harman's Blacksmith Shop, 6 miles E. from Dillsburg, York Co. (Coll. of 1875.)

4310 to 4456—SECTION A—1877.

Along the Delaware River in Bucks Co., Pa.

From Demmer's house to Morrisville.

Locality 1.

4310, (5,) Syenitic gneiss. First exposure on Delaware River below J. Demmer's house. 2 miles above Penn'a R. R. Bridge at Morrisville, Lower Makefield Twp., Bucks Co., Pa.
4311, (5,) do. do. do.
4312, (5,) do. do. do.
4313, (5,) do. do. do.
4314, (5,) do. do. do.
4315, (5,) do. do. do.
4316, (6,) Coarse feldspathic gneiss, do.
4317, (6,) do. do. do.
4318, (6,) Quartz and feldspar. do. do.
4319, (6,) do. do. do.
4320, (7,) Horblendic gneiss. do. do.
4321, (7,) Syenitic gneiss. do. do.
4322, (7,) do. do. do.

4323, (7,) Syenitic gneiss. First exposure on Delaware River below J. Demmer's house, &c.
4324, (8,) do. do. do.
4325, (8,) do. do. do.
4326, (9,) Syenitic gneiss. Second exposure below J. Demmer's house, 10′ thick.
4327, (9,) do. do. do.
4328, (9,) do. do. do.
4329, (10,) do. do. do.
4330, (10,) do. do. do.
4331, (11,) do. 8′ thick. do. do.
4332, (11,) do. do. do.
4333, (12,) do. 6′ thick. do. do.
4334, (12,) do. (weathered.) do.
4335, (12,) Gneiss. do. do. do.
4336, (13,) do. 5′ thick. do. do.
4337, (13,) Schistose gneiss. do. do.
4338, (13,) do. do. do.
4339, (13,) Syenitic gneiss. do. do.
4340, (14,) do. (blue quartz.) 2′ thick do.
4341, (14,) do. do. do.
4342, (15,) do. 5′ thick. do. do.
4343, (15,) do. do. do.
4344, (15,) do. do. do.
4345, (16,) do. 3′ thick. do. do.
4346, (16,) do. do. do.
4347, (17,) do. 20′ thick. do. do.
4348, (18,) do. (blue quartz) 15′ thick do.
4349, (18,) do. do. do.
4350, (18,) do. do. do.

Locality 4.

Quarry on property of William Moon, 2 miles N. W. from Morrisville, west side Penn'a canal, Lower Makefield Twp., Bucks Co.

4351, (1,) Quartz Syenite (blue quartz,) 8′ thick.
4352, (1,) do. do. do.
4353, (1,) do. do. do.
4354, (1,) do. do. do.

4355, (1,) Quartz Syenite (blue quartz,) 8′ thick. Quarry on property of William Moon, &c.
4356, (1,) do. do. do.
4357, (1,) do. do. do.
4358, (1,) do. do. do.
4359, (1,) do. do. do.
4360, (2,) do. garnets, do.
4361, (2,) Schistose garnetiferous gneiss, do.
4362, (2,) Garnetiferous gneiss, do.
4363, (2,) do. do. do.
4364, (2,) do. do. do.
4365, (2,) do. do. do.
4366, (3,) do. do. do.
4367, (3,) do. do. do.
4368, (3,) Syenitic, with blue quartz and garnets, do. do.
4369, (3,) Garnetiferous gneiss, do. do.
4370, (3,) do. do. do.
4371, (3,) do. do. do.
4372, (4,) Syenitic gneiss, do. do.
4373, (4,) do. do. do.
4374, (4,) Garnetiferous hornblendic gneiss, do.
4375, (4,) Syenitic gneiss, do. do.
4376, (4,) do. do. do.
4377, (4,) do. do. do.
4378, (19,) Syenitic gneiss. On Delaware river, opposite road to Fallsington, (on N. line of Hiram Burges' estate,) Lower Makefield Twp., Bucks.
4379, (19,) do. do. do.
4380, (20,) Hornblendic gneiss. At bridge over mill-race, Lower Makefield Twp., Bucks Co.
4381, (21,) Gneiss, 6′ thick. S. Dana's place, 1 mile N. W. from Morrisville, Bucks Co., Pa., on west side Penn'a canal.
4382, (21,) do. do. do.
4383, (22,) do. (thinly laminated,) 4′ thick, do.
4384, (23,) Hornblendic gneiss, 30′ thick, do.
4385, (23,) do. do. do.

4386, (23,) Hornblendic gneiss, 30′ thick. S. Dana's place, 1 mile N. W. from Morrisville, &c.
4387, (24,) do. do.
4388, (24,) do. do.
4389, (25,) Gneiss, (thinly laminated,) 15′ thick, do.
4390, (26,) do. (quartzose,) 7′ thick, do.
4391, (27,) do. 5′ thick, do.
4392, (28,) do. 3′ thick, do.
4393, (28,) do. do. do.
4394, (28,) do. (quartzose,) do. do.
4395, (29,) do. (thinly laminated,) 8′ thick, do.
4396, (30,) do. 4′ thick, do.
4397, (30,) do. 4′ thick, do.
4398, (31,) Quartz, feldspar, hornblende, mica, do.
4399, (31,) do. do. do.
4400, (31,) do. do. do.
4401, (32,) Sandstone (hydro-mica.) Edge Hill, above City Bridge to Trenton, Falls Twp.
4402, (32,) do. do. do.
4403, (32,) do. compact, do.
4404, (32,) do. do. do.
4405, (32,) do. do. do.
4406, (33,) Syenitic gneiss. Above City Bridge, Falls Twp., Bucks Co. S. of 4405.
4407, (33,) do. weathered. do. do.
4408, (33,) Quartzose gneiss weathered.
4409, (34,) Gneiss. City Bridge Morrisville, Delaware river.
4410, (34,) do. do. do.

Locality 2.

Below City Bridge, Falls Twp., Bucks Co.

4411, (35,) Quartzose gneiss.
4412, (35,) do. do.
4413, (36,) Gneiss, do. 30′ thick, do.
4414, (36,) do. do. do.
4415, (37,) do. (thinly laminated,) 20′ thick, do.
4416, (37,) do. do. do. do.
4417, (38,) do. do. do.
4418, (38,) do. (thinly laminated,) do. do.

4419, (39,) Syenitic gneiss, 20′ thick. Below City Bridge.
4420, (39,) do. do. do.
4421, (40,) Gneiss, 10′ thick, do.
4422, (40,) do. Syenitic, do. do.
4423, (41,) do. do. do. do.
4424, (41,) do. do. do. do.
4425, (41,) do do. do. do.
4426, (42,) Syenitic gneiss (banded,) do. do.
4427, (42,) do. do. do.
4428, (43,) Quartzose gneiss, do. do.
4429, (44,) Gneiss, do. do.
4430, (45,) Thinly laminated gneiss 12′ thick. Opposite first house below bridge, over canal waste, west side of road, S. of City Bridge, Falls Twp., Bucks Co.
4431, (45,) Gneiss (hydro-mica ?) do. do.
4432, (46,) do. 10′ thick, do.
4433, (46,) do. do. do.
4434, (47,) do. ? thinly bedded,
4435, (47,) do. } 15′ thick, do.
4436, (48,) do.
4437, (49,) do. 30′ thick, do. Rear of first house on river side of road below City Bridge, Morrisville, Bucks Co., Pa.
4438, (49,) Feldspathic gneiss, do.
4439, (50,) Quartzose gneiss 15′ thick S. of ice-house, S. of City Bridge, Morrisville, Bucks Co., Pa.
4440, (50,) do. 15′ thick, do.
4441, (51,) do. 6′ thick, do.
4442, (51,) do. do. do.
4443, (52,) do. 8′ thick, do.
4444, (53,) do. do. do.
4445, (53.) Quartzose micaceous gneiss, do.
4446, (54,) do. do.
4447, (54,) Garnetiferous gneiss (thinly laminated,)
4448, (54,) do. do.
4449, (54,) do. do.
4450, (55,) Quartzose gneiss, 15′ thick, do.
4451, (55,) do. do.

4452, (56,) Quartzose gneiss. S. of ice-house, S. of City Bridge, Morrisville, Bucks Co.. Pa.
4453, (56,) do. (micaceous). do.
4454, (56,) do. (garnetiferous) do.
4455, (56,) do. do.
4456, (57,) do. do.

4457 to 4974—SECTION B—1877.

Along the Neshaminy Creek, Bucks Co.

From Vanartsdalen's Quarry to Delaware River.

Locality 14.

Vanartsdalen's limestone quarry, between Feasterville and Attleboro (Langhorne) Southampton Twp., Bucks Co.
4457, (1,) Quartz, feldspar, hornblende.
4458, (2,) do. do.
4459, (3,) Gneiss, do.
4460, (4,) do. do.
4461, (5,) Calcite, do.
4462, (6,) do. with graphite, do.
4463, (7,) do. do. do.
4464, (8,) do.
4465, (9,) Crystalline limestone, do.
4466, (10,) do. do.
4467, (11,) do. with graphite, do.
4468, (12,) Calcite, do. do.
4469, (13,) do. do. do.
4470, (14,) Crystalline limestone and hornblende.
4471, (15,) Calcite with graphite, do. do.
4472, (16,) Graphite, feldspar, and mica, do.
4473, (17,) Calcite, hornblende? graphite, do.

Locality 40a.

635 paces below bridge over Neshaminy creek on road from Attleboro to Feasterville on west side of creek, opposite little island and on property of Phineas Paxon.
4474, (1,) Gneiss, about 635 paces below Wilson's bridge, west side Neshaminy creek.

4475, (2,) Gneiss, about 15′ below Wilson's bridge, &c.
4476, (3,) Quartzose gneiss, 58′ do.
4477, (4,) do. 69′ do.
4478, (5,) do. 80′ do.
4479, (6,) do. (weathered,) 89′ do.
4480, (7,) do. do. 95′ do.
4481, (8,) Blue quartz, 102′ do.
4482, (9,) Quartzose gneiss, (weathered,) 108′ do.
4483, (10,) do. do. 116′ do.
4484, (11,) do. do. 132′ do.
4485, (12,) do. 235′ do.
4486, (13,) do. 310′ do.
4487, (14,) do. with graphite, 436′ do.
4488, (15,) do. (weathered,) 438′ do.
4489, (16,) do. with pyrite, 448′ do.

Locality 40.

West side of Neshaminy creek about 136 paces below specimen No. 16 of locality 40*a*, also on property of Phineas Paxon.

4490, (1,) Gneiss with pyrite, about 860′ below specimen No. 1 of locality 40*a*, on west side of Neshaminy creek.
4491, (2,) Gneiss, (weathered,) about 869′ below specimen 1, of locality 40*a*, west side of creek.
1492, (2,) do. 869′ do.
4493, (3,) do. 879′ do.
4494, (4,) do. (with graphite,) 906′ do.
4495, (5,) do. (weathered,) 919′ do.
4496, (6,) Quartzose gneiss, (with graphite,) 927′ do.
4497, (7,) do. (weathered,) 932′ do.
4498, (8,) do. do. 939′ do.
4499, (8,) do. do. 939′ do.
4500, (9,) do. do. 940′ do.
4501, (10,) do. (weathered,) 951′ do.
4502, (11,) do. do. 957′ do.
4503, (12,) do. do. 966′ do.
4504, (13,) do. do. 1024′ do.
4505, (14,) do. (weathered,) 1030′ do.

4506, (15,) Gneiss, about 1041′ below specimen 1, &c.
4507, (16,) Quartzose gneiss (with graphite,) 1131′ do.
4508, (17,) Gneiss, 1138′ do.
4509, (18,) do. 1147′ do.
4510, (19,) do. (with graphite,) 1154′ do.
4511, (20,) do. do. 1165′ do.
4512, (21,) do. do. 1171′ do.
4513, (22,) do. do. (and pyrite,) 1188′ do.
4514, (23,) do. do. (weathered,) 1201′ do.
4515, (24,) do. do. 1207′ do.
4516, (25,) Syenitic gneiss, (with graphite,) 1217′ do.
4517, (26,) Gneiss, do. 1229′ do.
4518, (27,) do. do. 1251′ do.
4519, (28,) do. (with fine garnets,) 1262′ do.
4520, (29,) do. (with graphite,) 1272′ do.
4521, (30,) do. do. 1279′ do.
4522, (31,) do. do. 1282′ do.
4523, (32,) do. do. 1296′ do.
4524, (33,) Quartzose gneiss, do. (weathered,) 1303′ do.
4525, (34,) Gneiss, 1312′ do.
4526, (35,) do. 1900′ do.
4527, (36,) do. 1918′ do.
4528, (37,) Quartzose gneiss, (weathered,) 1929′ do.
4529, (38,) do. do. 1940′ do.
4530, (39,) do. (with graphite,) 1994′ do.
4531, (40,) Syenitic gneiss, (weathered,) 2090′ out in creek.

Locality 39.

One half mile below Willet bridge, on east side of Neshaminy creek, on Joseph Watson's farm.

4532, (1,) Gneiss, 1st outcrop close to edge of creek.
4533, (2,) do. (weathered,) 7′ south from edge of creek.
4534, (3,) do. 12′ do.
4535, (4,) do. 17′ do.
4536, (5,) do. 2d outcrop, about ⅛ mile down Neshaminy creek, from Willet bridge, close to water's edge, on property of Jos. Watson.
4537, (6,) do. 6′ from edge of creek.
4538, (6,) Blue quartz, do.

Locality 65.

In bank below Tomlinson's house, on west side of Neshaminy creek, on Tomlinson's farm.

4539, (1,) Quartzose gneiss, (weathered,) about 58′ from edge of creek, measuring south.

4540, (2,) Schistose gneiss, 50′ from edge of creek, and 8′ below spec. 4539.

Locality 38.

On Joseph Watson's farm, east side of Neshaminy creek, beginning at 60 paces below south end of island, in creek.

1541, (1,) Gneiss, 60 paces below south end of island.
4542, (2,) do. 5′ do.
4543, (3,) do. (weathered), 9′ do.
4544, (4,) do. (with blue quartz,) 19′ do.
4545, (5,) do. (laminated,) 137′ below specimen No. 1, exposure high up in bank.
4546, (6,) do. (feldspathic,) 144′ do.
4547, (7,) do. 150′ do.
4548, (8,) do. 155′ do.
4549, (9,) Granulite, ? 160′ do.
4550, (10,) Gneiss, 165′ do.
4551, (11,) do. (finely laminated,) 171′ do.
4552, (12,) do. do. 270′ below specimen No. 1; exposure in bank still further down.
4553, (12,) Quartzose gneiss, do.
4554, (13,) Gneiss, (finely laminated,) 278′ do.
4555, (14,) do. 285′ below specimen No. 1; exposure higher up in bank.
4556, (15,) do. 318′ do.
4557, (16,) do. 330′ do.
4558, (17,) Feldspathic gneiss, 338′ do.
4559, (18,) Gneiss, (finely laminated,) 358′ do.
4560, (18,) do. do.
4561, (19,) do. (with iron oxide stains,) 370′ do.
4562, (20,) do. (finely laminated,) 588′ do. exposure low down near water's edge.
4563, (21,) do. do. 647′ do.

4564, (22,) Gneiss, exposure low down near water's edge, 671′ below specimen No. 1, &c.
4565, (23,) do. do. 694′ do.
and 41′ north of the line fence between Jos. Watson's and Frank Praul's farms; north side of brook running into Neshaminy creek from the east side.
4566, (23,) Quartz, do.
4567, (25,) Gneiss, (finely laminated,) 700′ below specimen No. 1, and 35′ north from line fence.
4568, (25,) do. do. 701′ do.
and 34′ north of same line fence, on north side of little stream flowing into Neshaminy creek from the east.
4569, (26,) do. (finely laminated,) 704′ do.
and 31′ north of same line fence.

Locality 37.

On lands of Frank Praul and Stephen Janney, in woods, east side of Neshaminy creek.

4570, (1,) Gneiss (thinly laminated.) About 87 paces below line fence between F. Praul and Jos. Watson, in woods, and high in bank, Praul's property.
4571, (1,) Thinly laminated quartzite, with feldspar, do.
4572, (2,) Micaceous feldspathic rock 29′ below specimen No. 1, and from top of high rocks in bank.
4573, (3,) Quartzose feldspathic rock with mica, 36′ do.
4574, (4,) Feldspathic gneiss, 44′ do.
4575, (5,) Quartzose feldspathic rock, with mica, 57′ do.
4576, (6,) Gneiss, 63′ do.
4577, (7,) Feldspathic gneiss, 136′ do.
2d exposure down creek; specimen taken from face of rock at lowest point measuring back, west to east.
4578, (8,) Feldspathic gneiss, 6′ east of spec. 4577
4579, (9,) Quartzite, 10′ do.
4580, (9,) Feldspathic gneiss, do.
4581, (10,) do. 13′ do.
4582, (11,) do. 22′ do.

4583, (12,) Gneiss (finely laminated,) 26′ east of spec. 4577
4584, (13,) do. 34′ do.
4585, (14,) do. 42′ do.
4586, (15,) do. 58′ below south end of second exposure, higher up in bank, (exposure No. 3.)
4587, (16,) do. 100′ below south end of second exposure.
4588, (17,) do. (finely laminated,) 105′ do.
4589, (18,) do. do. 114′ do.
4590, (19,) do. do. 130′ do.
4591, (20,) do. do. 136′ do.
4592, (21,) Feldspar, quartz and mica, 142′ do.
4593, (21,) do. do. do.
4594, (22,) do. 203′ do. and 22′ north of line fence between Praul's and Janney's, and on F. Praul's land.
4595, (23,) Finely laminated gneiss, 211′ do. and 14′ north of same line fence, property of F. Praul.
4596, (24,) Finely laminated gneiss. Edge of quarry on Stephen Janney's farm, about 53 paces from line fence between properties of Janney and Praul.
4597, (25,) Finely laminated gneiss, 17′ measuring south across quarry.
4598, (26,) do. 19′ do.
4599, (27,) do. 21′ do.
4600, (28,) do. 28′ do.
4601, (29,) do. 32′ do.
4602, (30,) do. 36′ do.
4603, (31,) do. 46′ do.
4604, (32,) do. 54′ do.
4605, (33,) do. (feldspathic,) 59′ do.
4606, (34,) do. 65′ do.
4607, (35,) do. 70′ do.
4608, (36,) do. 73′ do.
4609, (37,) do. 80′ do.
4610, (38,) do. 83′ do.
4611, (39,) do. 92′ do.

4612, (40,) Edge Hill rock. Quartzite with micaceous iron ore and hydro-mica. North end of outcrop about 100 paces below Janney's quarry, measuring from line of specimen No. 4611.
4613, (40,) Quartzose and hydro-mica with tourmaline, do.
4614, (41,) do. Varying from a hydro-mica slate to a laminated quartzite. 13′ below 100 paces from quarry.
4615, (42,) do. 20′ do.
4616, (43,) do. 25′ do.
4617, (44,) do. 30′ do.
4618, (45,) do. 291′ do. from north end of cut, on upper side of road, a little above breast of dam at Oakford, west side of creek.
4619, (46,) do. 6′ below N. end of cut.
4620, (47,) do. 11′ do.
4621, (48,) do. 16′ do.
4622, (49,) do. 20′ do.
4623, (50,) do. 26′ do.
4624, (51,) do. 32′ do.
4625, (52,) do. 39′ do.
4626, (53,) do. 45′ do.
4627, (54,) do. 50′ do.
4628, (55,) do. 56′ do.
4629, ($\frac{B}{18}$) do. Breast of dam above Del. & B. B. R. R. bridge crossing of Neshaminy creek, Janney's station, Middletown Twp., Bucks Co.

Locality 17.

Above and below road bridge at Oakford, west side of Neshaminy creek.

4630, (1,) Garnetiferous schist, with hydro-mica and feldspar, 32′ below corner of old mill, west side of creek, and 102′ above end of abutment—upper side of bridge.
4631, (2,) do. 37′ below corner of mill.
4632, (3,) do. 50′ do.

4633, (4,) Quartzite, 54′ below corner of mill.
and 80′ above bridge.
4634, (5,) Garnetiferous schist, with hydro-mica and feldspar, 62′ below corner of mill.
4635, (6,) do. 71′ do.
4636, (7,) do. 93′ do.
4637, (8,) do. 116′ do.
and 18′ above bridge.
4638, (9,) Quartzite, 123′ below corner of mill.
4639, (9,) Garnetiferous schist, hydro-mica and feldspar.
123′ below corner of mill.
4640, (10,) do. 134′ do.
and just at abutment of upper side of bridge.
4641, (11,) do. 145′ do.
and 11′ below abutment on upper side of bridge.
4642, (12,) do. 160′ do.
and 26′ below bridge.
4643, (13,) do. 166′ do.
and 32′ below bridge.
4644, (14,) do. 173′ do.
4645, (15,) Quartzite, 189′ do.
also 55′ below upper side of bridge.
4646, (16,) Garnetiferous feldspatic rock,
196′ do.
and 62′ below bridge.
4647, (17,) do. 201′ do.
4648, (18,) do. 211′ do.
and 77′ below bridge.
4648*b*, (19,) Garnets. From below road bridge at Oakford, west side of creek.

Locality 18.

On John P. Townsend's farm, on east side of road leading to Hulmeville, along north slope of bank.

4649, (1,) Syenitic rock. Loose in field on north slope of hill, east side of road to Hulmeville.
4650, (2,) do. do.
4651, (3,) do. do.

4652. 4. Syenitic rock, 838' S. from line of Spec. 4648 of Loc. 17, and 67' below line fence on top of hill—Townsend's farm.

4653. 5. do. Exposure nearer the road. 23' from Spec. 4652, and 44' from same line fence.

4654. 6. do. 58' from Spec. No. 4652, and 9' from line fence on top of hill, Townsend's farm.

Locality 18a.

Along roadside; road leading to Hulmeville from Oakford. 674' from line fence, measuring up along roadside.

4655. 1. do. 674'. From line fence 9' above spec. 4654 of Loc. 18.

4656. (2.) do. 791' do.

Specimens $\frac{B}{24}$ (7) to $\frac{B}{143}$ (100).

4657, 7. Garnetiferous schist, hydro-mica, feldspar and a little quartz. First outcrop of rock on Neshaminy creek, east side, below the confluence of Chub run. Middletown twp., Bucks county, at bend of creek.

4658, (8.) do. 12' do.

4659, (8.) do. 12' do.

4660, (9.) do. 32' do.

4661, (10.) do. 70' do.

4662, (11.) do., becoming more micaceous and bearing fewer garnets. 80' do.

4663, (12.) do. 100' do.

4664, (12.) do. 100' do.

4665, (13.) do. 115' do.

4666, (14.) do. 145' do.

4667, (15.) do. 165' do.

4668, (16.) Micaceous schist, 270' do.

4669, (17.) Micaceous feldspathic schist, 650' do.

4670, (18.) Micaceous schist, 680' do.

4671, (19.) do. 690' do.

4672, (20.) do. 710' do.

4673, (21.) Micaceous schist, with few garnets, 730' do.

4674, (22,) Thinly laminated mica schist with quartz and feldspar, 733′ above spec. 4654, &c.
4675, (23,) do. 760′ do.
4676, (24,) do. 775′ do.
4677, (25,) do. 785′ do.
4678, (26,) do. 910′ do.
4679, (27,) Quartzite, 920′ do.
4680, (27,) Mica schists, 920′ do.
4681, (27,) do. 920′ do.
4682, (28,) do. 935′ do.
4683, (29,) do. 945′ do.
4684, (30,) do. 1095′ do.
4685, (31,) do. 1180′ do.
4686, (32,) do. 1190′ do.
4687, (33,) do. 1225′ do.
4688, (34,) do. (finer grained,) 1245′ do.
4689, (35,) do. 1249′ do.
4690, (36,) Garnetiferous schist, hydro-mica, feldspar and quartz, 1270′ do.
4691, (37,) do. 1340′ do.
4692, (38,) do. 1344′ do.
4693, (39,) do. 1353′ do.
4694, (39,) do. 1353′ do.
4695, (40,) do. 1358′ do.
4696, (41,) do. 1364′ do.
4697, (42,) do. 1368′ do.
4698, (43,) do. 1375′ do.
4699, (44,) Gray micaceous schist, with quartz and feldspar, 1430′ do.
4700, (45,) do. 1433′ do.
4701, (46,) do. 1450′ do.
4702, (47,) do. 1470′ do.
4703, (48,) Gray micaceous schist, coarse and fine grained alternating, 1490′ do.
4704, (49,) do. 1495′ do.
4705, (49,) Mica schist, 1495′ do.
4706, (49,) do. 1495′ do.
4707, (50,) do. 1555′ do.
4708, (51,) do. 1580′ do.

4709, (52,) Mica schist, 1585′ above spec. 4654, of Loc. 18.
4710, (53,) do. (with feldspar,) 1735′ do.
4711, (54,) do. (porphyritic,) 1738′ do.
4712, (54,) do. 1738′ do.
4713, (55,) do. 1750′ do.
4714, (55,) do. 1750′ do.
4715, (55,) do. 1750′ do.
4716, (56,) do. 1830′ do.
4717, (56,) do. 1830′ do.
4718, (57,) do. 1855′ do.
4719, (58,) do. (with feldspar,) 1860′ do.
4720, (58,) do. 1860′ do.
4721, (58,) do. 1860′ do.
4722, (59,) do. 1865′ do.
4723, (60,) do. 1875′ do.
4724, (61,) Syenite, 2125′ do.
4725, (62,) Mica schist, 2540′ do.
4726, (63,) do. 3800′ do.
4727, (64,) Quartz, feldspar and mica, 3812′ do.
4728, (64,) do. 3812′ do.
4729, (65,) do. 3814′ do.
4730, (65,) Mica schists, alternating with quartzose, 3814′ do.
4731, (65,) Feldspathic beds, and thinly laminated hornblendic rock, 3814′ do.
4732, (66,) Gneiss, do. (feldspathic,) 3845′ do.
4733, (66,) do. 3845′ do.
4734, (67,) Garnetiferous mica schist, 4500′ do.
4735, (68,) do. 4506′ do.
4736, (69,) do. 4640′ do.
4737, (69,) Fine-grained mica schist, 4640′ do.
4738, (70,) Mica schist, 4660′ do.
4739, (71,) Hornblende schist, 4675′ do.
4740, (71,) Mica schist, 4675′ do.
4741, (72,) Micaceous, feldspathic gneiss, 4755′ do.
4742, (72,) Quartz schist, 4755′ do.
4743, (73,) Mica schist, 4760′ do.
4744, (74,) do. 4765′ do.
4745, (75,) Quartzite, 4770′ do.

4746, (75,) Hornblende schist, 4770′ ab. spec. 4654 of Loc. 18.
4747, (75,) Mica schist, 4770′ do.
4748, (76,) Hornblende schist, 4775′ do.
4749, (76,) Quartzite, 4775′ do.
4750, (77,) Mica schist, 4785′ do.
4751, (78,) do. 4790′ do.
4752, (79,) Hornblende schist, 4798′ do.
4753, (80,) Mica schist, 4805′ do.
4754, (81,) do. 4812′ do.
4755, (81,) do. 4812′ do.
4756, (82,) do. 4835′ do.
4757, (83,) do. 4840′ do.
4758, (84,) do. 4850′ do.
4759, (84,) do. 4850′ do.
4760, (85,) do. 4865′ do.
4761, (86,) do. 4885′ do.
4762, (87,) Quartzite, 4891′ do.
4763, (88,) Mica schist (garnetiferous,) 4896′ do.
4764, (89,) do. 4950′ do.
4765, (89,) do. (feldspathic,) 4950′ do.
4766, (90,) do. do. 4970′ do.
4767, (91,) do. do. 4980′ do.
4768, (92,) do. do. 4985′ do.
4769, (93,) do. do. 5005′ do.
4770, (94,) do. do. 5010′ do.
4771, (95,) do. do. 5016′ do.
4772, (95,) do. do. 5016′ do.
4773, (96,) do. do. 5022′ do.
4774, (96,) do. do. 5022′ do.
4775, (97,) do. do. 5055′ do.
4776, (98,) do. do. 5057′ do.
4777, (99,) Quartz, 5059′ do.
4778, (100,) Mica schist, 5060′ do.

Locality 24.

From breast of dam above Hulmeville down to bridge at Hulmeville, west side of creek.

4779, (1,) Mica schist. (Feldspathic.) 26′ above breast of dam, measuring from a point 41′ west of low-water mark on top of dam.
4780, (2,) Feldspathic garnetiferous mica schist, 23′ do.
4781, (3,) Feldspathic mica schist, 17′ do.
4782, (4,) do. 12′ do.
4783, (5,) do. 8′ above breast.
4784, (5,) Quartzite, 8′ above the dam.
4785, (6,) Mica schist (feldspathic,) On line with dam.
4786, (7,) Quartzite, 3′ below breast.
4787, (8,) Mica schist (feldspathic garnetiferous,) 10′ do.
4788, (9,) do. do. 20′ do.
4789, (10,) Gneissic schist, 30′ do.
4790, (10,) Mica schist (feldspathic,) 30′ do.
4791, (11,) do. do. 37′ do.
4792, (12,) do. do. 52′ do.
4793, (12,) Gneiss, 52′ do.
4794, (13,) Gneissic schist, 61′ do.
4795, (13,) do. 61′ do.
4796, (14,) Mica schist (feldspathic,) 79′ do.
4797, (14,) Gneiss, 79′ do.
4798, (15,) Mica schist (feldspathic,) 86′ do.
4799, (16,) Gneissic schist, 99′ do.
4800, (16,) Mica schist (feldspathic,) 99′ do.
4801, (17,) do. do. 108′ do.
4802, (18,) do. do. 121′ do.
4803, (18,) Gneissic schist, 121′ do.
4804, (19,) Quartz, 133′ do.
4805, (20,) Gneiss, 135′ do.
4806, (21,) Mica schist (feldspathic,) 150′ do.
4807, (22,) do. do. 167′ do.
4808, (22,) Gneissic schist, 167′ do.
4809, (23,) do. 179′ do.
4810, (23,) do. 179′ do.

4811,	(24,)	Gneissic schist, 190′ below breast of dam, &c.	
4812,	(25,)	do.	198′ do.
4813,	(26,)	do.	211′ do.
4814,	(27,)	do.	219′ do.
4815,	(28,)	do.	227′ do.
4816,	(29,)	do.	234′ do.
4817,	(30,)	do.	245′ do.
4818,	(33,)	do.	271′ do.
4819,	(34,)	do.	278′ do.
4820,	(35,)	do.	290′ do.
4821,	(36,)	do.	437′ do.
4822,	(37,)	Mica-schist, (feldspathic,)	468′ do
4823,	(38,)	do. do.	480′ do.
4824,	(39,)	do. do.	489′ do.
4825,	(40,)	do. do.	532′ do.
4826,	(41,)	do. do.	538′ do.
4827,	(42,)	Quartzose gneiss,	546′ do.
4828,	(43,)	Mica schist, (feldspathic,)	578′ do.
4829,	(44,)	Feldspar,	617′ do.
4830,	(45,)	Quartzose schist,	762′ do.
4831,	(46,)	Mica schist, (feldspathic,)	767′ do.
4832,	(47,)	do. do.	806′ do.
4833,	(48,)	Quartzose schist,	832′ do.
4834,	(49,)	Mica schist, (feldspathic),	852′ do
4835,	(50,)	do. do.	865′ do.
4836,	(51,)	do. do.	874′ do.
4837,	(51,)	Quartz and schist,	874′ do.
4838,	(52,)	Mica schist, (feldspathic,)	894′ do.
4839,	(53,)	do. do.	899′ do.
4840,	(54,)	do. do.	910′ do.
4841,	(55,)	do. do.	925′ do.
4842,	(55,)	Quartz,	925′ do.
4843,	(56,)	Mica schist, (feldspathic,)	935′ do.
4844,	(57,)	do. do.	941′ do.
4845,	(58,)	do. do.	961′ do.
4846,	(59,)	do. do.	977′ do.
4847,	(60,)	do. do.	987′ do.
4848,	(61,)	do. do.	998′ do.
4849,	(62,)	do. (garnetiferous, feldspathic,)	1008′ do.

4850, (63,) (garnetiferous feldspathic,) 1014′ below breast of dam, &c.
4851, (64,) do. do. do. 1028′ do.
4852, (65,) do. do. do. 1038′ do.
4853, (66,) Quartz and fibrolite, 1041′ do.
4854, (67,) Mica schist, (feldspathic,) 1051′ do.
4855, (68,) do. do. 1059′ do.
4856, (69,) do. do. 1072′ do.
4857, (70,) Quartz, 1080′ do.
4858, (71,) do 1089′ do.
4859, (72,) Gneissic schist, 1098′ do.
4860, (73,) do. 1104′ do.
4861, (74,) do. 1114′ do.
4862, (75,) do. 1125′ do.
4863, (76,) do. (quartzose,) 1137′ do.
4864, (77,) do. 1146′ do.
4865, (78,) do. 1155′ do.
4866, (79,) do. 1166′ do.
4867, (80,) do. On west side of creek, S. side of bridge, along roadside in front of cemetery, 149 paces W. from end of wagon bridge.

Locality 24a.

On Lewis Stirck's land, along Neshaminy creek east side, 400 paces below corner of hotel, at Hulmeville, Bucks Co.
4868, (1,) Gneissic schist, 400 paces below corner of hotel.
4869, (2,) do. (quartzose,) 15′ do.
4870, (3,) do. 27′ do.
4871, (4,) do. 42′ do.

Locality 25.

One half mile below Hulmeville bridge, west side of creek, in bank, on farm of Samuel A. Keen, along small stream, Bensalem Twp.; Bucks Co.
4872, (1,) Mica schist, from top of quarry.
4873, (2,) Quartzose schist, 8′ feet below spec. 4872, measing down from top of quarry.
4874, (3,) do. 14′ do.

4875, (4,) Hornblendic quartzose rock, 184′ south of quarry in brook.
4876, (5,) Quartzose rock, 194′ do.
4877, (6,) do. 259′ do.
4878, (7,) do. 267′ do.
4879, (8,) Mica schist, (fine-grained,) 289′ do.
4880, (9,) do. do. 322′ do.
4881, (10,) do. do. 331′ do.
4882, (10,) Quartz, 331′ do.
4883, (11) Mica schist, (fine grained,) 351′ do.
4884, (12,) Quartz schist, 358′ do.
and 28 paces below road bridge.
4885, (13,) Mica schist, from outcrop on same farm below quarry on west side of brook, 164′ above line fence, dividing properties of Walter Johnson and Samuel A. Keen.
4886, (14,) Mica schist (feldspathic,) 156′ above fence.
4887, (15,) do. 98′ do.
4888, (16,) do. 13′ do.
4889, (17,) do. 2′ do.
4890, (18,) do. (coarse,) On Walter Johnson's farm, 125′ below same line fence west side of creek in bank exposure.
4891, (19,) Mica schist, 269′ do.
4892, (19,) Quartz, 269′ do.
4893, (20,) Mica schist, 277′ do.

Locality 26b.

Old "iron ore opening" on farm of J. Hibbs, and near west boundary of farm.
4894, (1,) Mica schist (feldspathic.) From top of quarry.
4895, (2,) do. do. 12′ below spec. 4894.

Locality 26a.

On property of R. Smith, 150 yards east from Neshaminy Methodist Church, in small stream, running into Neshaminy creek, in marsh at edge of field, just across the fence dividing properties of Hibbs and Smith.

4896, (1,) Course micaceous, schist, quartz and feldspar. 26′ measuring south from center of farm road on property of J. G. Hibbs.
4897, (1,) do. (feldspathic,) 26′ do.
4898, (2,) do. do. 18′ do.

Locality 26.

Above Newportville dam, near township line, east side of Neshaminy creek, Bristol twp.

4899, (1,) Coarse mica schist, (feldspathic,) 88′ to bridge, (on township line,) measuring on line with spec. No. 4898 of Loc. 26*b*, and 187′ measuring direct along the road.
4900, (2,) do. do. 18′ below spec. No. 4899, along edge of creek.
4901, (3,) do. (quartzose,) 31′ do.
4902, (4,) do. (feldspathic,) 114′ do.
4903, (5,) do. do. 127′ do.
4904, (6,) do. do. 142′ do.
4905, (7,) do. do. 157′ do.
4906, (8,) do. do. 343′ do.
4907, (9,) Compact schist, (hornblendic, ?) 357′ do.
4908, (10,) Coarse mica schist, (feldspathic,) 367′ do.
4909, (11,) do. do. 392′ do.
4910, (12,) do. do. 410′ do.
4911, (13,) do. do. 426′ do.
4912, (14,) do. do. 441′ do.
4913, (15,) do. do. 458′ do.
4914, (16,) do. do. 475′ do. and just across little bridge at end of race, close to edge of east side of Neshaminy creek.
4915, (17,) do. do. 488′ do. below spec. 4889; also, 162′ above line of breast of dam, measuring on straight line to breast, east side of Neshaminy creek.

Locality 27.

In Bensalem Twp., above Newportville, just below breast of dam, west side of Neshaminy creek.

4916, (1,) Coarse mica schist (feldspathic,) at breast of dam.
4917, (2,) do. do. 10′ below do.
4918, (3,) do. do. 47′ do.
4919, (4,) do. do. 70′ do.
4920, (5,) do. do. 102′ do.
4921, (6,) do. do. 129′ do.
4922, (7,) do. do 149′ do.

Locality 28.

On west side of Neshaminy creek, opposite Newportville, on Emslie's estate, Bensalem Twp.

4923, (1,) Coarse mica, schist, (feldspathic,) 307 paces from spec. 4922 of loc. 27, measuring on straight line down creek.
4924, (2,) do. do. 41′ below 307 paces.
4925, (3,) do. do. 58′ do.
4926, (4,) do. do. 75′ do.
4927, (5,) do. do. 93′ do.
4928, (6,) do. do. 113′ do.
4929, (7,) do. do. 142′ do.
4930, (8,) do. do. 163′ do.
4931, (9,) do. do. 185′ do.
4932, (10,) do. do. 218′ do. and 344 paces above upper side of road bridge at Newportville, measuring on a straight line from bridge to spec. 4932.

Locality 29.

Below bridge at Newportville, east side of Neshaminy creek, back of old house, on property of W. Vandergrift.

4933, (1,) Coarse mica schist, (feldspathic,) 185 paces below bridge at Newportsville, east side, (visible at low tide.)
4934, (2,) do. do. 19′ below spec. 4933.
4935, (3,) do. do. 41′ do.
4936, (4,) do. do. 72′ do.
4937, (5,) do. do. 95′ do. in bank.
4938, (6,) do. do. 100′ do. do.

4939, (7,) Coarse mica schist, (feldspathic,) 106′ below spec. 4933.
4940, (8,) do. do. 113′ do.
4941, (9,) do. do. 123′ do.
4942, (10,) do. do. 140′ do.
4943, (11,) do. do. 152′ do.
4944, (12,) do. do. 162′ do.
4945, (13,) do. do. 207′ do.
4946, (14,) do. do. 218′ do.
4947, (15,) do. do. 235′ do.
4948, (16,) More finely laminated, 251′ do.

Locality 30.

On north side of brook, near road bridge below Flushing public school-house; road leading to Philadelphia; Asa Smith's farm.

4949, (1,) Enstatite (Genth,) 33′ below lower side of bridge; Flushing school-house, N. side of stream.
4950, (2,) do. do. 14′ below spec. 4949.
4951, (3,) do. do. 38′ do.
4952, (4,) do. do. 60′ do.
4953, (5,) Fine grained micaceous rock, 273′ do. in stream.
4954, (6,) do. 278′ do.
4955, (7,) Mica schist, (feldspathic,) 289′ do.
4956, (8,) do. do. 301′ do.
4957, (9,) do. do. 314′ do.

Locality 31.

On farm of Benjamin Taylor, occupied by Allan Hibbs, west side Neshaminy creek, Bensalem Twp.

4958 (1,) Mica schist, (feldspathic,) 140′ north from N. E. corner of dwelling house, measuring direct to north exposure.
4959, (2,) do. do. 12′ below spec. 4958
4960, (3,) do. do. 22′ do.
4961, (4,) finer grained, do. do. 34′ do.
4962, (5,) do. do. 45′ do.
4963, (6,) finer grained, do. do. 58′ do.
4964, (7,) do. do. 72′ do.

4965, (8,) Mica schist, (feldspathic,) 87′ below spec. 4958.
4966, (9,) do. do. 116′ do.
4967, (10,) finer grained, do. do. 126′ do.
also, 60′ from S. E. corner of dwelling-house, measuring east, and direct to south exposure of rock.

Locality 33.

Bensalem Twp., west side of Neshaminy creek. Quarry on Wm. Vandergrift's land, about 350 yards above road bridge at Schenk's property.

4968, (1,) Mica schist, (feldspathic,) fine grained, from top of quarry.
4969, (2,) do. do. 12′ below do.
4970, (3,) Coarse mica schist, (feldspathic,) 22′ below spec. No. 4968.
4971, (4,) Gray feldspathic mica schist, 36′ do.

Locality 32.

From quarry opened on pic-nic grounds, east side of Neshaminy creek, Bristol Twp., on property of Thos. Williams, near Schenk's estate, about 150 yards from turn of road leading to Penn'a R. R.

4972, (1,) Mica schist, (feldspathic,) 31′, measuring due east from high water mark, on edge of Neshaminy creek.
4973, (2,) Mica schist, (feldspathic,) 6′ below 4972.

Locality 34.

Just above the road bridge at Schenk's station, Penn'a R. R., west side of Neshaminy creek, on property of Geo. W. Sipler, Bensalem Twp.

4974, (1,) Mica schist, (feldspathic,) 54′ from lower corner of line fence between Geo. W. Sipler and John Lewis, measuring south.

Locality 5.

New Red Sandstone, from quarry on property of George Justice, worked by S. B. and E. W. Twining, of Yard-

leyville, west side Penn'a canal, 2½ miles N. of Morrisville, Lower Makefield Twp, Bucks Co.

4975, Light colored fine conglomerate.
4976, do.
4977, do.
4978, Coarse gray sandstone.
4979, Light colored conglomerate.
4980, do.
4981, Gray micaceous sandstone,
4982, Fine-grained gray conglomerate.
4983, do.
4984, Coarse micaceous sandstone.
4985, Coarse conglomerate.
4986, do.
4987, do.
4988, do.
4989, do.
4990, do.
4991, Light colored sandstone.
4992, Coarse conglomerate.
4993, do.
4994, do.
4995, do.
4996, Gray micaceous sandstone.
4997, do.
4998, Decomposing coarse sandstone.
4999, do.
5000, Decomposing conglomerate.
5001, Brown micaceous sandstone.
5002, Gray do. do.
5003, Shaly sandstone.
5004, Light colored sandstone.
5005, Gray conglomerate.
5006, Iron oxide, stained conglomerate.
5007, Gray coarse sandstone.
5008, Light colored do.
5009, Gray micaceous sandstone.

5010 to 5021—CHAS. A. ASHBURNER—1875.

5010, (326,) [II.] Calciferous, (Dolomite,) showing peculiar forms of weathered cracks. Grove quarry, in Black Log valley, Cromwell Twp., Huntingdon county.

Medina SS., IV.

5011, (327,) White Medina sandstone, showing ripple marks, loose; Rockhill Gap.

Between VIII and IX.

5012, (328,) Brownish-gray sandstone, showing fucoids and *Spirifer disjuncta* on lower surface, and ripple marks on upper. Railroad cut east end of Clear ridge.

Oriskany SS., VII.

5013, (329,) Wavellite, with finely radiated structure, formed on the surface of Oriskany sandstone; Sandy Ridge, near Orbisonia.

5014, (330,) Barite, associated with brown hematite from the "Chert vein," in the lower Oriskany measures of Sandy ridge.

VIII.

5015, (331,) Brown sandstone, coated with calcite; from railroad cut end of Clear Ridge, Clay township.

Red Shale, XI.

5016, (332,) Mauch Chunk red shale, coated with fibrous calcite and quartz; Wray's Hill tunnel.

5017, (333,) Mauch Chunk red shale, coated with fibrous calcite, and an asbestus-like mineral, ditto.

5018, (334,) Mauch Chunk red shale, coated with fibrous calcite, quartz, and a fibrous silicate, ditto.

5019, (335,) Manganiferous calcite and specular iron ore, coating surface of Mauch Chunk red shale, ditto.

5020, (326,) Manganiferous calcite, occurring as a coating on the surfaces (stratified) of the Mauch Chunk red shale, ditto.

XII.

5021, (337,) Reniform wad, coating surfaces of *Pottsville conglomerate;* from Rocky ridge, at the end of Wray's Hill tunnel.

5022 to 5046—F. PRIME, Jr.—1874-75.

5022, (189,) [B.] Potsdam SS. Quarry at East Penn Junction. At Allentown, Lehigh Co., Pa.

5023, (190,) [C.] Damourite. Quarry near East Penn Junction. Do.

5024, (191,) [E.] Damourite. Quarry near East Penn Junction. Do.

5025, (192,) [G.] Flint. Quarry near East Penn Junction. Do.

5026, (193,) [H.] Slate or Damourite. Quarry 600 ft. N. W. East Penn Junction. Do.

5027, (194,) [T.] Decomposed slate or Damourite. Ferndale, on Lehigh Valley R. R., near Catasauqua.

5028, (195,) [A. B.] Do. From Biery's Bridge on Lehigh Valley R. R., opposite Lower Catasauqua.

5029, (196,) [A. E.] On Lehigh Valley R. R., opposite Catasauqua.

5030, (197,) [A. F.] Do.

5031, (198,) [A. F .] Do.

5032, (199,) [A. F_3.] Do.

5033, (1200,) [A. F_4.] Do.

5034, (1201,) [V.] 1600 ft. S. of Biery's Bridge on Lehigh Valley R. R.

5035, (1202,) Bottom of Potsdam Sandstone, close to junction of Laurentian rocks. Henry Seller's quarry, 2 miles S. E. from Allentown, Lehigh Valley R. R. (1877.)

5036, (19,) Wall rock of ore. Damourite? Thomas Iron Co.'s mine at Hensingerville, near Alburtis, Lehigh Co.

5037, (20,) Wall rock. Do.

5038, (24,) Bottom Rock. South side of the South Mountain, on the Perkiomen side. Reading Coal and Iron Co.'s mine at Siesholtzville, 3 miles from Alburtis.

5039, (48,) Wall rock. Thomas Breinig's mine, near Breinigsville, Lehigh Co.

5040, (56,) Blue ochre, said to be sulphury. Francis Breinig's mine, 1½ miles N. N. W. of Breinigsville.

5041, (88,) Damourite slate. Krömmlich and Lichtenwallner's mine in Fogelsville.

5042, (101,) S. side of Lock Ridge, near Alburtis.

5043, (102,) Aphrosiderite? forming strings in (101.) South side of Lock Ridge, near Alburtis.

5044, (129,) Brecciated Limestone. Near junction of Nos. II and III. Siegfried's Bridge, or Whitehall on Lehigh Valley R. R.

5045, (134,) Trenton Limestone No. II. Samuel Laubach's quarry, 1½ miles S. E. of Ironton.

5046, (135,) Limestone. From the great limestone quarry, 1 mile N. of Alburtis, on road to Fogelsville, Lehigh Co.

5047 to 5087—W. G. PLATT—1875.

5047, (1,) Dolerite; Stone quarry east end of Lambertville, New Jersey.

5048, (2,) do. ⅛ mile S. S. W. of ditto.

5049, (3,) do. From exposure of rocks in hillside, 250 yds. S. W. of No. (2), going south from Lambertville.

5050, (4,) Dolerite; Exposure in hillside, 50 yards south from No. (3,) near Lambertville.

5051. (5,) do. From same place as No. (4,) taken from stone pile, near Lambertville.

5052, (6,) do. From stone quarry, 50–80 yards south of exposure where Nos. (4) and (5) were obtained.

5053. (7,) do. Exposure opposite north flank of Goat Hill, and separated from it by a small run.

5054, (8.) do. Surface bowlders on west flank of Goat Hill, near Lambertville.

5055, (9.) do. do.

5056, (10,) do. Stone quarry on west flank of Goat Hill, near Lambertville.

5057, (11,) do. do.

5058, (12,) do. Exposure of rocks ¼ mile below (3) quarry containing Nos. (10) and (11.)

5059, (13,) do. From surface piece on hillside, ¼ mile from No. (12). No exposure; makes up country rock, but broken up in small pieces.

5060, (14.) do. ⅛ mile S. from No. (13.)

5061, (15,) do. do.

5062, (16,) do. From hill ⅛ mile south of where Nos. (14) and (15) were obtained. Rocks exposed.

5063, (1,) do. Exposure on hillside at extreme S. end of New Hope, Bucks Co., Penn'a.

5064, (2,) do. Quarry 250 yards S. of where No. (1) was taken, Bucks Co.

5065, (3,) do. From rocks in place, 50 yards south of No. (2,) ditto.

5066, (4,) do. Quarry opposite Goat Hill, 100 yards from where No. 3 was taken, ditto.

5067, (5,) do. From surface bowlder on Bowman's Hill, 2 miles south of Goat Hill, and between New Hope and Brownsburg, Bucks Co.

5068, (6,) Dolerite; From surface bowlder on Bowman's Hill, &c.
5069, (8,) do. Surface bowlder on Jericho Hill, Brownsburg, 4 miles from New Hope.
5070, (9,) do. do.
5071, do. 1 mile S. of Lambertville, N. J.
5072, do. 2 miles from Lumberville, opposite Mt. Pleasant, in New Jersey.
5073, do. In bowlders at surface at Pt. Pleasant, Bucks Co.
5074, do. Taken from bowlder at roadside, 2 miles from Lumberville, near Mt. Pleasant, Bucks Co.
5075, do. From quarry near Lumberton, ¾ mile from Lumberville, do.
5076, do. do.
5077, do. Exposure of measures on Delaware river, ¼ mile below Lumberville, Bucks Co.
5078, do. Found on the surface, near his house, by L. B. Labarre, midway between Lumberville and Pt. Pleasant, Bucks Co.
5079, (5,) do. Found in R. R. cut at Rock Hill, 1± mile N. of north end of tunnel, N. P. R. R.
5080, (1,) do. From surface bowlder on East Rock hill, between Quakertown and N. end of N. P. R. R. tunnel.
5081, (2,) do. do.
5082, (3,) do. Railroad cut at Rock hill, 1± mile north of N. end N. P. R. R. tunnel, do.
5083, (5,) do. Railroad cut, 100 yards south of cut at Rock Hill, N. P. R. R. do.
5084, (1,) do. Surface bowlder on N. E. flank of Haycock Hill, Bucks Co.
5085, (2,) do. do.
5086, (3,) do. Surface bowlder on summit of Haycock Hill, Bucks Co.

5087, (4,) Dolerite; From bowlder lying in bed up small stream, 2½ miles above Milford, near Bridgeton, Bucks Co.

5088 to 5120—MISCELLANEOUS LITHOLOGICAL COLLECTION—1875-6.

5088, (514,) Clinton fossil ore. 1 mile N. W. from Frankstown. Cambria Iron Co.'s slope, Blair Co., (collected by R. H. Sanders.)
5089, (514,) do. do.
5090, (515,) do. Roof slate of Frankstown bed. Cambria Iron Co.'s slope, Blair Co., (R. H. Sanders.)
5091, (513,) do. Fossil ore. Jos. Patton's limestone ore bank, near Hollidaysburg, Blair Co., (Sanders.)
5092, (513,) do. do.
5093, (513,) do. do.
5094, (513,) do. do.
5095, (513,) do. do.
5096, (513,) do. do.
5097, (513,) do. do.
5098, (513,) do. do.
5099, ( ) Sandstone. Hartman's quarry, Beaver Falls, Beaver Co. Presented by Jos. Hartman, Esq.
5100, Light-gray fine-grained sandstone, do.
5101, do. do.
5102, Sandstone with large pebble, do.
5103, Sandstone with fucoidal (?) markings, do.
5104, Sandstone slab with fuciodal marking, do.
5105, Hematite ore, do.
5106, Sandstone with calcite, do.
5107, Olean conglomerate, Rock City, south from Olean, Cattaraugus Co., N. Y. (C. A. Ashburner, 1877.)
5108, Olean conglomerate. From summit N. W. from Custer City, McKean Co. (C. A. Ashburner.)

5109, Conglomerate, (Salamanca.) From Rock City, Cattaraugus Co., N. Y. (C. A. Ashburner.)

5110, do. do.

5111, Chemung. At Big Shanty railroad cut above Bradford division, N. Y., and E. R. R., McKean Co. (C. A. Ashburner, 1876.)

5112, Calciferous; bottom of No. II, ⅛ mile east from Williamsburg on Juniata river, Blair Co. (F. Platt, 1875.)

5113, Sandstone with crinoid marking. Between 1st and 2d mountains, near Swatara creek, Lebanon Co. (Presented by Isaac Hoffer, Esq.)

5114, Sandstone (calciferous) with fossils. *Spirifer disjuncta.*

5115, Hamilton sandstone. Saddleback ridge, Orbisonia, Huntingdon Co.

5116, Chemung. Camp Lot, 4 miles from Lafayette, McKean Co.

5117, (862,) Chemung. East side Tunangwant creek, near DeGolier, Bradford branch of Erie R. R., McKean Co.

5118, (862,) do. do.

5119, Chemung. Camp Lot. 4 miles from Lafayette, McKean Co.

5120, New red sandstone. Found at the Gwynedd tunnel, N. P. R. R. (Presented by Ellis Clark, Jr., 1874.)

5121 to 5246—CHARLES E. BILLIN—1876.

5121, (0,) "Blue rock" of Bush ridge. A shaft (No. 37) of Nichol's struck this rock near Greenwood furnace on terrace of station 135, Huntingdon Co. (Billin,'76.)

5222, (2,) Hard fossil ore; vein 14″ thick. Back of R. J. Massey's, 4 miles from McAlevy's Fort; Tussey mountain ore range, in Barree Twp., Huntingdon Co. (Billin, 1876.)

5223, (4,) Fossil ore from old workings of Little Furnace, 1 mile N. W. of McAlevy's Fort, in ore ridge between Stewart's and Sugart's, Huntingdon Co. (Billin, 1876.)

5224, (5,) Hard silicious ore, coloring the top of Medina SS., (IV,) near Greenwood Furnace, on terrace of Broad Mountain, Sta. 137, Huntingdon Co. (Billin.)

5225, (8,) Pipe ore, occurring on top of Calciferous, near Boalsburg, at Curtin mine, Centre Co.

5226, (9,) Calciferous sandrock (dolomite) from below the pipe ore, do.

5227, (10,) Compact, fine-grained ferruginous sandstone, occurring on top of No. IV, (farmer's "red rock"); Robt. Fleming's mine, near Monroe Furnace, Huntingdon Co.

5228, (13,) Limestone, upper layers of L. Helderberg (Lewistown limestone); A. B. Miller's farm, Warrior Ridge, Barree Twp., Huntingdon Co.

5229, (15,) Slickensides, crystallization of calcite, do.

5230, (16,) Mottled black and gray limestone, probably top of calciferous. Andrew Campbell's quarry, 2½ miles from Belleville, Mifflin Co. (1876).

5231, (17,) Light bluish-gray limestone; bottom of Chazy, do.

5232, (18,) Calciferous sandstone (dolomitic). From the anticlinal in Greenwood ore bank, near Belleville, do.

5233, (18,) Magnesian limestone, do.

5234, (19,) Magnesian limestone filled with drusy quartz cavities, (Calciferous?) near drug store at Belleville, Mifflin Co.

5235, (20,) Limestone. Top of No. 2. Douglas Campbell farm, 2 miles from Belleville, Mifflin Co.

5236, (21,) Mottled dark and light gray limestone (Trenton), do.

5237, (22,) Limestone, occurring 80 feet± below the ore. John Barr's quarry, 4⅛ miles from McAlevy's Fort, in Huntingdon Co. (Billin.)

5238, (23,) Concretionary limestone lying between red shale and fossil ore. Huff farm, 1½ miles S. W. of Ennisville, do.

5239*a*, (25,) Fossil rock occurring with No. V, 4 miles from Manor Hill, Tussey mountain ore range back of R. J. Massey's in Barree Twp., Huntingdon Co.

5239, (26,) Oriskany, 1½ miles south of Huston's. do.

5240, (27,) Altered ore sandstone; miners "blue rock." Drift No. 31, Brush ridge, Jackson Twp.

5241, (27,) do. with ancorite, do.

5242, (28,) Fossiliferous limestone and carbonate of iron about 15″ thick, occurring just in or above the upper red shale 900± feet S. of Tussey mountain ore range. R. J. Massey's, 4 miles from Manor Hill, Huntingdon Co., do.

5243, (29,) Supposed alteration of the ore sandstone, (V.) Broad mtn. dip, Cox's valley, 2 miles north of Milroy, on L. and B. turnpike, Mifflin turnpike.

5244, (30,) Upper part of Medina, No. IV, (*Scolithus*,) Rag hollow, 1 mile east of Greenwood furnace, Huntingdon Co.

5245, (31,) Bog ore, probably derived from Oriskany. A B. Miller's farm, Warrior ridge, Huntingdon Co.

5246, (401,) White mendina sandstone. *Arthrophycus harlani*, at Greenwood furnace, Broad mountain, Huntingdon Co.

5247 to 5374—SECTION C.

Through Southampton Twp. Bucks Co., from Churchville to Brownsville. (Trevose station.)

Locality 13.

5247, (1,) Schistose gneiss, west branch of Mill creek, quarry on property of Jno. and James Anderson, ¼ mile N. of Buck hotel, Feasterville, and west of road to Churchville.
5248, (2,) do. (white,) do.
5249, (3,) do. (gray,) do.
5250, (4,) do. (white,) do.
5251, (5,) do. do. do.
5252, (6,) do. (gray,) do.
5253, (7,) do. (light gray,) do.
5254, (8,) Feldspathic gneiss, do.
5255, (9,) do. do.
5256, (10,) Light gray schistose gneiss, do.
5257, (11,) do. do.
5258, (12,) Gray gneiss, do.
5259, (13,) do. do.
5260, (14,) Gray schistose gneiss, do.
5261, (15,) do. (with iron oxide stains,) do.
5262, (16,) do. do. do.
5263, (17,) White schistose gneiss, do.
5264, (18,) Gray, do. west branch of Mill creek, on Jno. and James Anderson's place, 270′ south from quarry.
5265, (19,) Light gray schistose gneiss, do.
5266, (20,) do. do.
5267, (21,) do. do.
5268, (22,) do. do.
5269, (23,) Quartz, do.
5270, (24,) Feldspar, do.

5271, (25,) Feldspathic gneiss, west branch of Mill creek, &c.
5272, (26,) do. (fine-grained,) do.
5273, (27,) Gray schistose gneiss, do.
5274, (28,) do. do.
5275, (29,) do. do.
5276, (30,) do. do.
5277, (31,) do. do.
5278, (32,) do. do.
5279, (33,) do. do.
5280, (34,) do. do.
5281, (35,) do. do.
5282, (36,) do. do.
5283, (37,) Gray gneiss, do.
5284, (38,) do. do.
5285, (39,) do. do.
5286, (40,) do. (with pyrite,) do.
5287, (41,) Light colored feldspathic gneiss, do.
5288, (42,) do. (coarser,) do.
5289, (43,) do. do. do.
5290, (44,) do. do. do.
5291, (45,) do. do. do.
5292, (46,) Gray gneiss, do.
5293, (47,) Quartzose gneiss, do.
5294, (48,) do. do.
5295, (49,) Blue quartz, feldspar and garnet, 270′, south of quarry on Jno. and Jas. Anderson's place, west branch of Mill creek.
5296, (50,) Blue quartz and pink feldspar.
5297, (51,) do.
5298, (52,) Feldspathic gneiss.
5299, (53,) Feldspar and quartz.
5300, (54,) do. from bowlders along valley of west branch of Mill creek, ¾ mile N. from Buck tavern, Feasterville, Bucks Co.
5301, (55,) do. do.
5302, (56,) do. do.
5303, (57,) Black syenitic gneiss, do.
5304, (58,) do. (schistose,) do.

Locality 16.

5305, (59,) Trap, between Buck tavern and Vanartsdalen's limestone quarry, crest of Buck ridge, along road to Langhorne, (from bowlders.)
5306, (60,) do. do.
5307, (61,) Black syenitic gneiss, do.
5308, (62,) do. do.
5309, (63,) Gray gneiss, do.
5310, (64,) Dark syenitic gneiss, do.
5311, (65,) Feldspathic gneiss, do.
5312, (66,) Bluish quartz and pink feldspar, do.
5313, (67,) Gneiss, do.

Locality 11.

5314, (68,) Gneiss, with graphite. From dump of graphite mine, on A. Johnson's farm, about 1 mile E. S. E. from Feasterville, on road to Brownsville, (shaft 120 feet deep.)
5315, (69,) do. do.
5316, (70,) do. do.
5317, (71,) do. do.
5318, (72,) Quartzose gneiss, with graphite, do.
5319, (73,) Feldspathic gneiss, do.
5320, (74,) do. with graphite, do.
5321, (75,) Graphitic gneiss, do.
5322, (76,) Hornblendic gneiss, do.
5323, (77,) Gneiss, with graphite, do.
5324, (78,) Quartz and graphite, do.
5325, (79,) Graphite, do.
5326, (80,) do. do.
5327, (81,) do. do.
5328, (82,) do. do.
5329, (83,) Gneiss, with graphite, do.
5330, (84,) do. do.
5331, (85,) do. do.
5332, (86,) do. do.
5333, (87,) Milk quartz, with graphite, do.
5334, (88,) Feldspathic gneiss, do.

Locality 12.

5335, (89,) Feldspathic gneiss. From quarry opened by the Del. & B. B. R. R. division of the N. P. R. R., on L. Willard's farm, ¾ mile S. W. from Feasterville, Bucks Co.

5336, (90,) do. do.
5337, (91,) do. do.
5338, (92,) do. do.
5339, (93,) do. do.
5340, (94,) do. do.
5341, (95,) do. do.
5342, (96,) do. do.
5343, (97,) do. do.
5344, (98,) do. do.
5345, (99,) do. do.
5346, (100,) do. do.
5347, (101,) do. do.

Locality 10.

5348, (102,) Sandstone, (hydromica.) Edge Hill rock, from quarry on S. Road's place, near Somerton, just north of county line, west side of road to Feasterville.

5349, (103,) do. do.
5350, (104,) do. do.
5351, (105,) do. do.
5352, (106,) do. do.
5353, (107,) do. do.
5354, (108,) do. do.
5355, (109,) do. do.
5356, (110,) do. do.
5357, (111,) do. do.
5358, (112,) do. do.
5359, (113,) do. do.
5360, (114,) do. Edge Hill rock, from S. Road's place.

5361, (116,) Sandstone, Edge Hill rock from S. Road's, &c.
5362, (118,) do. do.
5363, (119,) do. do.
5364, (121,) do. do.
5365, (122,) do. do.
5366, (123,) do. with tourmaline, do.

Locality 48.

At Brownsville, (Trevose station, on Del. & B. B. R. R.,) Southampton Twp., Bucks Co.

5367, Yellow clay, (ferruginous.) From north side of Brownsville road bridge crossing Del. & B. B. R. R., 302′ north of bridge, west side of cut.
5368, White clay, 52′ north of same bridge, same side.
5369, Red clay, just at bridge, west side of track.
5370, (1,) Brown hematite ore. Del. & B. B. R. R. cut.
5371, (1,) do. do.
5372, (1,) do. do.
5373, (1,) do. do.
5374, (1,) do. do.

5375 to 5448—MISCELLANEOUS LITHOLOGICAL COLLECTION—1877.

Locality 3.

5375, (3,) Sandstone, with hydro-mica. Quarry in Edge Hill, on Pratt's place, N. W. from Morrisville, on west side of Penn'a canal, Lower Makefield Twp., Bucks Co.
5376, (3,) do. do.
5377, (3,) Quartzite and sandstone, with hydro-mica, do.
5378, (3,) do. do.
5379, (3,) Quartzite, with hydro-mica, do.
5380, (3,) do. do.
5381, (3,) Sandstone, with hydro-mica, do.

5382, (3,) Sandstone, with pyrites. Quarry in Edge Hill, &c.
5383, (3,) do. do.
5384, (3,) do. with tourmaline, do.
5385, (3,) do. do. do.
5386, (3,) Quartzite, with hydro-mica, do.
5387, (3,) do. do. with tourmaline, do.
5388, (3,) Sandstone, with hydro-mica, tourmaline, and pyrites, do.
5389, (3,) Quartzite, with pyrite impressions, do.
5390, (3,) Sandstone, with hydro-mica, do.
5391, (3,) do. do.
5392, (3,) do. with tourmaline, do.
5393, (3,) do. do.
5394, (3,) do. with tourmaline, do.
5395, (3,) do. do. do.
5396, (3,) Quartz, with hydro-mica and tourmaline, do.
5397, (3,) Sandstone, with do. do.
5398, (3,) Sandstone, with hydro-mica, do.

Locality 6.

5399, (6,) Quartz conglomerate with hydro-mica. Edge Hill quarry on Dan Neeley's place, about 1½–1¾ miles N. W. from Morrisville.
5400, (6,) do. do.
5401, (6,) White sandstone, with hydro-mica, do.
5402, (6,) do. do.
5403, (6,) do. do.
5404, (6,) do. do.
5405, (6,) do. do.
5406, (6,) do. do.
5407, (6,) do. do.
5408, (6,) do. do.

Locality 8.

5409, (8,) Sandstone and hydro-mica. Edge Hill quarry, opened by Del. & B. B. R. R. at Flowers' mill, N. E. of Langhorne station.

5410, (8,) Quartz and hydro-mica. Edge Hill quarry, &c.
5411, (8,) Sandstone and hydro-mica, do.
5412, (8,) do. do.
5413, (8,) Quartz and hydro-mica, do.

Locality 9.

5414, (9,) Mica schist, feldspathic. Queen Anne's run, near Emilie P. O., Bucks Co.
5415, (9,) Coarser do. do.
5416, (9,) do. do.

Locality 10.

5417, (10,) Gray sandstone with hydro-mica. Edge Hill opening, near Somerton Station, just north of county line, on W. side of road to Feasterville, on Road's place, Southampton Twp., Bucks Co.
5418, (10,) Sandstone with hydro-mica (decomposing), do.
5419, (10,) do. do.
5420, (10,) do. do.
5421, (10,) do. do.
5422, (10,) do. do.
5423, (10,) do. do.
5424, (10,) do. do.
5425, (10,) do. (decomposing) do.
5426, (10,) do. do.
5427, (10,) do. do.
5428, (10,) Quartz and hydro-mica, do.
5429, (10,) Sandstone and hydro-mica, do.
5430, (10,) do. do.
5431, (10,) do. do.
5432, (10,) do. do.
5433, (10,) do. do.
5434, (10,) Greenish hydro-micaceous sandstone, do.
5435, (10,) White sandstone with hydro-mica, do.
5436, (10,) Quartz, hydro-mica and specular iron, do.

5437, (10,) Sandstone with hydro-mica (decomposing). Edge Hill opening, &c.
5438, (10,) do. do.
5439, (10,) do. do.
5440, (10,) do. do.
5441, (10,) do. do.
5442, (10,) do. do.
5443, (10,) do. do.
5444, (10,) Quartzite with hydro-mica and specular iron, do.
5445, (10,) Sandstone with hydro-mica, do.
5446, (10,) do. do.
5447, (10,) do. do.
5448, (10,) do. do.

5449 to 5891—SECTION D.

Pennypack creek, from Woodside station, on the Fox Chase and Newtown R. R., to the House of Correction quarries, on Delaware river, Pa.

Locality 73.

Exposure of gneissic rock in Moreland Twp., just where public road crosses Philadelphia and Newtown R. R., near creek, and just below Woodside station, east side R. R.
5449, (1,) Gneiss, 12′, measuring south from centre of public road.
5450, (1,) do. do.
5451, (2,) do. 9′ below No. 1.
5452, (3,) Feldspathic rock, with pink and white feldspar, 37′ do.
5453, (3,) Gray gneiss, 37′ do.

Locality 73a.

About 421 yards from Spec. No. 3, of Locality 73, measuring south on line of railroad; extensive exposure of syenitic rock in R. R. cut, on C. Yerkes' property, east side of railroad.

5454, (1,) Grey gneiss, 421 yards below Spec. No. 3, of Locality 73.
5455, (2,) do. 9′ below No. 1.
5456, (3,) Feldspathic rock, with pink feldspar, 15′ do.
5457, (3,) Grayish gneiss, 15′ do.
5458, (4,) do. 26′ do.
5459, (5,) Feldspathic gneiss, 32′ do.
5460, (6,) do. In second railroad cut, 100 yds. below Spec. No. 5, measuring on line with railroad, from west side of cut.
5461, (7,) do. 10′ below No. 6.
5462, (7,) do. 10′ do.
5463, (8,) do. 21′ do.
5464, (9,) do. 33′ do.
5465, (9,) do. 33′ do.
5466, (10,) do. 46′ do.
5467, (11,) do. 57′ do.
5468, (12,) do. 69′ do.
5469, (13,) Grayish gneiss, 84′ do.
5470, (13,) do. 84′ do.
5471, (14,) do. with garnets, 91′ do.
5472, (15,) do. close-grained, 107′ do.
5473, (16,) do. do. 125′ do.
5474, (17,) do. close-grained, with garnets, 155′ do.
5475, (17,) do. do. 155′ do.

Locality 74.

Extensive exposure of syenitic rock in railroad cut, just opposite Shelmire's Mills; bluish color and very hard; Philadelphia and Newtown R. R., Moreland Twp.

5476, (1,) Close-grained, dark-gray gneiss, with garnets 608 paces below Spec. No. 17, of Loc. 73*a*, measuring on line of railroad.
5477, (2,) Micaceous gneiss, (compact,) 15′ below No. 1.
5478, (3,) Close-grained, dark-gray gneiss, with garnets, 28′ do.
5479, (4,) Micaceous gneiss, (compact,) 50′ do.

5480, (5,) do. 66′ below No. 1.
5481, (6,) Dark-gray, close-grained gneiss, garnets, 83′ do.
5482, (7,) do. 103′ do.
5483, (8,) do. 123′ do.
5484, (9,) Close-grained feldspathic gneiss, garnets, 134′ do.
5485, (10,) Feldspathic gneiss, stained, 184′ do.
5486, (11,) Quartzose gneiss, do. 202′ do.
5487, (12,) Graphitic do. decomposing, 234′ do.
and 297 paces above centre of road bridge crossing Pennypack creek, just below Paper Mill station; bridge built in 1847.

Locality 75.

Extensive exposure of gneissic rock in railroad cut, Philadelphia and Newtown R. R., south of Paper Mill station, Moreland Twp., Montgomery Co.

5488, (1,) Dark-gray gneiss, 210 paces below centre of road-bridge crossing Pennypack creek, just below Paper Mill station.
5489, (2,) Quartzose gneiss, 15′ below No. 1.
5490, (3,) Gray gneiss, with blue quartz, 29′ do.
5491, (4,) do. more compact, 44′ do.
5492, (5,) Fine-grained grayish gneiss, 56′ do.
5493, (5,) Coarser do. 56′ do.
5494, (6,) do. do. 70′ do.
5495, (7,) Close-grained, mottled hornblendic? gneiss, 88′ do.
5496, (8,) do. do. 103′ do.
5497, (9,) Light-gray, compact gneiss, 115′ do.
5498, (10,) do. do. 129′ do.

Locality 75a.

Exposures of gneissic rock, first cut south of loc. 75. 2nd cut at north end of Howe truss bridge. 3d exposure in railroad cut south of same bridge. Moreland Twp., Montgomery Co.

5499, (1,) Grayish gneiss, in first cut, 245 paces from spec. 10 of locality 75, measuring on line of railroad.
5500, (2,) do. decomposing, 21′ below No. 1.
5501, (3,) do. do. 38′ do.
5502, (4,) do. 48′ do.
5503, (4,) do. 48′ do.
5504, (5,) do. 71′ do.
5505, (5,) do. 71′ do.
5506, (6,) do. 80′ do.
5507, (7,) do. 400′ below spec. No. 6, in second cut.
5508, (8,) do. 415′ do.
5509, (9,) Close grained white gneiss, 440′ do.
5510, (10,) do. 577′ do. and 62′ above north end of Howe truss, first bridge crossing Pennypack below Byberry road.
5511, (11,) do. in third cut and 498′ from north end of same bridge.
5512, (12,) do. 19′ below No. 11.
5513, (13,) do. 38′ do.
5514, (14,) do. 50′ do.
5515, (15,) do. 70′ do.
5516, (15,) do. coarser, 70′ do.
5517, (16,) do. 83′ do.
5518, (17,) do. 101′ do.
5519, (18,) Gray gneiss, 117′ do.
5520, (19,) do. 134′ do.
5521, (20,) Dark gray close-grained gneiss, 214′ do.
5522, (21,) Laminated gray gneiss, stained, 232′ do.
5523, (22,) Gray gneiss, 333′ do.
5524, (23,) Close grained gray gneiss, pyrite, 344′ do.
5525, (23,) do. porphyritic appearance, 344′ do.
5526, (24,) Micaceous gneiss, 368′ do. and 145 paces above south end of second Howe truss bridge below Byberry road.

Locality 76.

Exposure of gneissic rock in railroad cut, west side Pennypack creek, 100 paces south of second bridge below Byberry road, Moreland Twp., and just north of C. Fetter's grist-mill.

5527, (1,) Grayish gneiss, 100 paces south of S. end of the above named bridge.

5528, (1,)	do.			do.
5529, (2,)	do.		15′	below No. 1.
5530, (2,)	Fine-grained gneiss,		15′	do.
5531, (3,)	Gray gneiss,		24′	do.
5532, (4,)	Light do.		36′	do.
5533, (4,)	Close grained,		36′	do.
5534, (4,)	Coarse gneiss,		36′	do.
5535, (5,)	Gray gneiss,		43′	do.
5536, (5,)	do.		43′	do.
5537, (6,)	Light gray gneiss,		54′	do.
5538, (7,)	Coarse do.		68′	do.
5539, (8,)	Grayish gneiss, finely laminated,		80′	do.
5540, (9,)	do.	do.	91′	do.
5541, (10,)	do.	do.	102′	do.
5542, (11,)	do.	do.	110′	do.
5543, (12,)	do.	more compact,	123′	do.
5544, (13,)	do.		151′	do.
5545, (14,)	do.		162′	do.
5546, (14,)	do.	schistose,	162′	do. also 93 paces north from center of road crossing creek at C. Fetter's mill.

Locality 77.

Outcrop of gneissic rock on west side Pennypack creek just above and west of Fetter's mill, at Head-race, Moreland Twp., Montgomery Co.

5547, (1,) Grayish gneiss, 43′ north from center of road crossing at Fetter's mill.

5548, (1,)	do.			do.
5549, (2,)	do.	with pyrite,	5′	below spec. 1.
5550, (2,)	do.		5′	do.

5551, (3,) Pinkish feldspathic gneiss, 33′ below No. 1, and 10′ from centre of road.
5552, (4,) Finely laminated gneiss, with pyrite impression, 13′ below center of road, and 10′ from N. W. cor. of Fetter's mill.
5553, (4,) do. do.
5554, (5,) Dark gray micaceous gneiss, 7′ below N. W. cor. of same mill, at back of mill, west side.

Locality 78.

Extensive exposure of gneissic rock in railroad cut, (Philadelphia & Newtown,) north of Howe truss bridge crossing Pennypack creek, on J. Walton's property, outcropping for some distance toward Walton's Mills, and 607 paces below center of public road crossing creek at C. Fetter's mill.

5555, (1,) Black syenitic gneiss, 607 paces below center of road, at Fetter's mill, measuring on line of railroad.

5556, (2,)	do.	34′	below No. 1.
5557, (3,)	Compact grayish gneiss,	57′	do.
5558, (3,)	do. with garnets,	57′	do.
5559, (4,)	Decomposing gneiss,	73′	do.
5560, (5,)	do.	91′	do.
5561, (5,)	do.	91′	do.
5562, (6,)	Compact gray gneiss,	107′	do.
5563, (6,)	do.	107′	do.
5564, (7,)	do.	128′	do.
5565, (8,)	do.	142′	do.
5566, (9,)	Gray gneiss, more laminated,	159′	do.
5567, (9,)	do.	159′	do.
5568, (10,)	Compact gray gneiss,	171′	do.
5569, (11,)	do.	180′	do.
5570, (11,)	do. fine, micaceous,	180′	do.
5571, (12,)	do.	193′	do.
5572, (13,)	do.	206′	do.
5573, (14,)	Finely laminated gneiss, with iron oxide stains,	213′	do.
5574, (15,)	Compact gneiss,	225′	do.
5575, (16,)	do.	235′	do.

5576, (17,) Compact gneiss, 249′ below No. 1.
5577, (18,) do. 264′ do.
5578, (19,) Finely laminated gneiss, with stains, 210′ below No. 18.
5579, (20,) Light-gray gneiss, 10′ below No. 19.
5580, (20,) do. 10′ do.
5581, (21,) do. 22′ do.
5582, (22,) do. 34′ do.
5583, (23,) do. more compact, 48′ do.
5584, (24,) do. do. 61′ do.
5585, (25,) do. do. From quarry 74′ below spec. 24, in bank east side of Pennypack creek.
5586, (26,) do. do. 12′ below No. 25.
5587, (27,) do. more laminated, 13′ do.
5588, (28,) do. 162′ below No. 27, in bank exposure east side Pennypack creek.
5589, (28,) do. laminated, 162′ do.
5590, (29,) do. do. 52′ below No. 28.
5591, (30,) Compact gray gneiss, 8′ below No. 29.

Locality 79.

In Abington Twp., on Newtown and Philadelphia railroad, south of junction with Bound Brook R. R.; outcrop of micaceous, extending into Moreland Twp. and near Pennypack creek.

5592, (1,) Argillaceous schist. From east side of track, 133′ below south end of Howe truss bridge, just south of D. & B. B. R. R. crossing.
5593, (2,) do. more compact, 9′ below No. 1.
5594, (2,) do. 9′ do.
5595, (3,) do. 21′ do.
5596, (4,) do. with iron oxide stains, 38′ do.
5597, (5,) do. 50′ do.
5598, (6,) do. 59′ do.
5599, (7,) do. with iron oxide stains, 71′ do.
5600, (8,) do. do. 81′ do.
5601, (9,) do. do. 96′ do.
5602, (9,) do. do. 96′ do.

5613. 10. Argillaceous schist with [illegible] strata. 106' below No. 1.
5614. 11. do. do. 116 do.
5615. 12. do. do. 132 do.
5616. 13. do. do. 140 do.
5617. 14. do. garnetiferous 150 do.
5618. 15. do. do. micaceous 170 do.
5619. 16. Micaceous schist with [illegible] strata. 178 do.
5620. 16. do. with [illegible] 178 do.
5621. 17. Decomposing argillaceous schist, garnets. 196 do.
5622. 17. do. do. 196 do.
5623. 18. do. do. 217 do.
5624. 19. do. 234 do.
5625. 20. do. 254 do.
5626. 21. Argillaceous schist, garnets. 267 do.
5627. 21. Micaceous schist with [illegible] strata. 268 do.
5628. 21. Argillaceous schist. [illegible] 268 do.
5629. 22. Micaceous schist. [illegible] 275 do.
5630. 22. do. do. 275 do.
5631. 23. Decomposing argillaceous schist garnets. 290' below No. 1.
5632. 23. do. do. 240 do.

Locality 5.

Exposure of micaceous and hornblende rock on west side Pennypack creek, north of stone-arch bridge crossing creek. Outcrop on property of John Hallowell, Esq., in Abington Twp., Montgomery Co.

5633. (1.) Coarse garnetiferous mica schist. At head of mill-race and 25 west from breast of Hallowell's mill-dam, above Pennepack creek bridge.
5634. (2.) do. 42' below spec. 1.
5635. (3.) do. 55' do.
5636. (3.) do. 55' do.
5637. (4.) do. 63' do.

5628, (5,) Black hornblende schist, 119′ below spec. 1.
5629, (5,) do. 119′ do.
5630, (6,) do. 132′ do.
5631, (6,) do. 132′ do.
5632, (7,) do. 145′ do.
5633, (7,) do. 145′ do.

Locality 81.

Quarry of micaceous rock; some soft, others very hard and blue in color, on property of W. T. Hallowell, extending for some distance along railroad south of Hallowell's grist-mill about 218 paces; Abington Twp.

5634, (1,) Hornblendic schist, (stained.) 218 paces below S. W. corner of mill, measuring along railroad.
5635, (2,) do. 10′ below No. 1.
5636, (3,) Greenish schist, 20′ do.
5637, (4,) Coarse, yellowish garnetiferous mica schist, 30′ do.
5638, (4,) do. 30′ do.
5639, (5,) Gray garnetiferous schist, 45′ do.
5640, (5,) do. 45′ do.
5641, (6,) do. micaceous, 51′ do.
5642, (7,) do. do. 57′ do.
5643, (8,) Gray mica schist, 100′ do. and in bank exposure west side of track.
5644, (8,) Coarse gneiss rocks in schist, 100′ do.
5645, (9,) Garnetiferous mica schist, stained, 119′ do.
5646, (9,) do. do. 119′ do.
5647, (10,) do. do. 133′ do.
5648, (11,) do. fine-grained, do. 142′ do.
5649, (11,) do. do. do. 142′ do.
5650, (12,) do. do. 155′ do.
5651, (13,) do. fine-grained, do. 165′ do.
5652, (14,) do. do. do. 177′ do.
5653, (14,) do. do. do. 177′ do.
5654, (15,) do. coarse, do. 195′ do.
5655, (16,) do. do. do. 211′ do.
5656, (16,) do. do. do. 211′ do.

5657, (17,) Garnetiferous mica schist, stained, 227′ below No. 1.
5658, (18,) Gray mica schist, 252′ do.
5659, (19,) do. 282′ do.
5660, (20,) do. 291′ do.
5661, (21,) do. argillaceous, 338′ do.
5662, (21,) do. stained, 338′ do.
5663, (22,) Decomposing mica schist, 358′ do.

Locality 82.

Exposure of micaceous rock, somewhat decomposed, in railroad cut, (Phila.& Newtown R. R.,) and cropping out on hillsides (with vein of decomposed quartz) on property of Wm. Fenton, Abington Twp. W. side of railroad.

5664, (1,) Honblendic schist, 150 paces below spec. No. 22 of Locality 81, measuring on railroad.
5665, (1,) do. do.
5666, (3,) Coarse decomposing gneiss garnets, 22′ below spec. 1.
5667, (4,) Hornblendic schist, 152′ do.
5668, (4,) do. 152′ do.
5669, (5,) Coarse gray mica schist, 200′ do.
5670, (6,) Hornblendic schist, 214′ do.
5671, (6,) do. 214′ do.
5672, (7,) Garnetiferous mica schist, 291′ do.
5673, (8,) do. decomposing, 306′ do.
5674, (9,) do. coarse, 322′ do.
5675, (10,) do. feldspathic, 346′ do.
5676, (10,) Quartzose, feldspathic schist, 346′ do.
5677, (11,) Coarse mica schist, garnetiferous, 364′ do.
5678, (12,) do. 383′ do.
5679, (13,) do. 402′ do.

Locality 82a.

Exposure of micaceous rock in cut, 138 paces below Loc. 82, and about ¾ mile south from Hallowell's mill in Abington Twp., west side of creek, opposite residence of J. B. Lippincott.

5680, (1,)	Coarse gray mica schist.			
5681, (2,)	do.		13′	below spec. 1.
5682, (3,)	do.		27′	do.
5683, (4,)	do.		128′	do.
5684, (5,)	do.		193′	do.
5685, (6,)	do.		243′	do.
5686, (7,)	do.	finer,	253′	do.
5687, (8,)	do.	feldspathic,	269′	do.
5688, (9,)	do.		282′	do.
5689, (10,)	do.		296′	do.
5690, (11,)	do.		309′	do.
5691, (12,)	do.	finer,	327′	do.
5692, (13,)	do.		373′	do.
5693, (14,)	do.		385′	do.
5694, (15,)	do.	garnetiferous,	448′	do.
5695, (16,)	do.	do.	604′	do.
5696, (17,)	do.	feldspathic,	622′	do.
5697, (18,)	do.	do.	644′	do.
5698, (19,)	do.	do.	653′	do.
5699, (20,)	do.		668′	do.
5700, (21,)	do.		686′	do.
5701, (22,)	do.	feldspathic, garnetiferous.	703′	do.
5702, (23,)	do.	do.	721′	do.
5703, (23,)	do.	do.	721′	do.
5704, (24,)	do.		741′	do.
5705, (25,)	do.	feldspathic,	751′	do.
5706, (26,)	do.	do.	766′	do.
5707, (27,)	do.		785′	do.
5708, (28,)	do.	finer,	809′	do.
5709, (29,)	do.	do.	837′	do.
5710, (30,)	do.		849′	do.
5711, (31,)	do.		861′	do.
5712, (32,)	do.		874′	do.
5713, (33,)	do.		891′	do.
5714, (34,)	do.		903′	do.
5715, (35,)	do.	garnetiferous,	913′	do.
5716, (36,)	do.	do.	931′	do.
5717, (37,)	do.		939′	do.

5718, (38,) Coarse gray mica schist, 947′ below spec. 1.
5719, (39,) do. 960′ do.
5720, (40,) do. 972′ do.
5721, (41,) do. 986′ do.
5722, (42,) do. 1000′ do.
5723, (42,) do. feldspathic, 1000′ do.
5724, (43,) do. 1070′ do.

Locality 83.

Outcrop of rock at edge of creek, east side, on property of J. Walton, 180 paces below spec. (43) of Locality 82*a*, measuring along railroad track; Abington Twp.

5725, (1,) Coarse micaceous schist, feldspathic; 180 paces below spec. (43) of Locality 82*a*.
5726, (2,) do. 12′ below No. 1.
5727, (3,) do. feldspathic, 24′ do.
5728, (4,) do. garnetiferous, 36′ do.

Locality 84.

Outcrop of rock on west side of creek, extending nearly across creek, on property of E. Fenton in Abington Twp.

5729, (1,) Gray garnetiferous mica schist, 138 paces below spec. No. 4 of locality 83, measuring along railroad track.
5730, (2,) Coarse mica schist, garnets, 14′ below spec. 1.
5731, (3,) do. 30′ do.
5732, (4,) do. 45′ do.
5733, (5,) do. feldspathic, 61′ do.
5734, (6,) do. 75′ do.

Locality 85.

Immense rocky bluff, about 60′ high, rising from edge of water, east side of creek, on property of Mr. Robinson, just opposite E. Fenton's residence, 165 paces below locality 84. There is also a smaller bluff on same side of creek, a short distance below.

5735, (1,) Coarse mica schist, 165 paces below spec. 6 of locality 84.

5736, (2,) Coarse mica schist, feldspathic, 14′ below spec. 1.
5737, (3,) do. do. 27′ do.
5738, (4,) do. garnetiferous, 45′ do.
5739, (5,) do. 60′ do.
5740, (6,) do. 76′ do.
5741, (7,) do. 102′ do.
5742, (8,) Close-grained quartzose schist, 2nd bluff, 792′ below No. 7.
5743, (9,) do. 13′ below No. 8.
5744, (9,) do. 13′ do.
5745, (10,) Coarse mica schist, 27′ do.
5746, (11,) do. 41′ do.
5747, (12,) do. 57′ do.
5748, (12,) do. 57′ do.
5749, (13,) Fine-grained gray garnetiferous schist, 71′ do.
5750, (14,) Coarse mica schist, 83′ do.

Locality 86.

First exposure is 415 paces below spec. 14 of locality 85, on east side of creek. 2nd exposure on west side of creek, 102 paces below 1st exposure; on micaceous (Phila.) rock, property Thos. Wistar, Abington Twp.

5751, (1,) Coarse mica schist, 415 paces below spec. 14 of loc. 85, east side of creek.
5752, (2,) do. feldspathic, 11′ below No. 1.
5753, (3,) Gray garnetiferous mica schist, 23′ do.
5754, (3,) do. 23′ do.
5755, (4,) Coarse mica schist, 306′ below spec. No. 3, on west side of creek.
5756, (5,) do. 11′ below No. 4.
5757, (6,) do. 21′ do.
5758, (7,) do. 33′ do.
5759, (8,) do. with garnets, 44′ do.
5760, (9,) do. do. 86′ do.

Locality 88.

In 23d ward, city of Phila., on west side Pennypack creek, about 1 mile south of bridge (Fox Chase road,) and about

250 paces north of J. P. Verree's mill-dam, measuring direct and not with creek.

Exposures of reddish-gray rock, micaceous, and extending from creek into the woods on property of J. P. Verree. This locality is difficult to locate, but is readily found by its noticeable bowlders lying in the creek, close to bank, and being the first exposure of size on east side of creek above mill-dam.

5761, (1,) Fine-grained (reddish-gray) mica schist. From most northern edge of outcrop.
5762, (2,) do. gray, 10′ below spec. 1.
5763, (3,) do. do. 20′ do.

Locality 90.

Extensive outcrop of white micaceous sand rock, on east side of Pennypack creek, just at breast of Verree's mill dam; also quarry on west side of creek—*same strike of rocks.* Also exposure in road leading to Fox Chase, at side of gate at entrance to Verree's property. Another exposure is just below above-named road-bridge, on east side of creek.

5764, (1,) Compact quartzose schist, 15′ above breast of Verree's mill dam.
5765, (1,) do. do.
5766, (2,) do. 10′ below No. 1.
5767, (3,) Light-gray feldspathic schist, 21′ do.
5768, (3,) do. 21′ do.
5769, (4,) do. 31′ do.
5770, (5,) do. 42′ do.
5771, (6,) Brown garnetiferous mica schist, 160 paces below spec. No. 5, and 15′ above upper side of road bridge crossing Pennypack creek, at Verree's mill.
5772, (7,) Fine-grained dark mica schist, (stained,) 15′ below spec. No. 6, on line of upper side of bridge.
5773, (8,) Compact micaceous schist, (light-gray,) 25′ below spec. No. 7, on lower side of same bridge.

Locality 91.

Exposure of bluish-gray rock, about 350 paces south of road bridge and below J. P. Verree's mill, west side of creek, at water's edge. This exposure is quite extensive, several ledges running into the creek.

5774, (1,) Compact quartzose, feldspathic rock, 55′ below line fence, dividing the Verree and Wood farms, short distance below turn in creek.
5775, (2,) Fine-grained, compact, dark schist, 7′ below No. 1.
5776, (3,) do. 42′ do.
5777, (4,) do. 48′ do.
5778, (5,) do. 92′ do.
5779, (6,) do. 111′ do.

Locality 92.

Outcrop of blue syenitic rock at house owned by Mr. Wood, west side of Pennypack creek, just north of Atkinson's or Miller's mill.

5780, (1,) Close-grained, dark hornblendic rock (weathered) at S. W. cor. of above named house.
5781, (2,) do. do. 8′ below No. 1.

Locality 93.

About 200 yards below Atkinson's mill, west side of creek outcrops of micaceous rock at water's edge, and cropping out on hillside, extending, with but little interruption, to a large flat micaceous rock—a maple tree standing near or upon it, and a forked walnut opposite; 75 yards further down the creek there is another exposure, also included in this locality.

5782, (1,) Coarse garnetiferous schist, (feldspathic,) on hillside, on Wood's land, 45′ above or north of line fence dividing properties of Dr. Lee and Mr. Wood.
5783, (2,) do. do. 12′ below spec. 1, and 33′ above same line fence.
5784, (3.) Gray mica schist, 8′ below line fence, close to creek.
5785, (3.) Coarse mica schist, garnets, stained, do.

5786, (4,) Coarse mica schist, garnets, st'd, 50′ below No. 3.
5787, (5,) do. garnets, 74′ do.
5788, (6,) do. do. 91′ do.
5789, (7,) do. 105′ do.
5790, (8,) do. 136′ below No. 7.
5791, (9,) do. 146′ do.
5792, (10,) do. garnets, 154′ do.
5793, (11,) do. 172′ do.
5794, (12,) do. weathered, 184′ do.
5795, (13,) do. 207′ do.
5796, (14,) do. 217′ do.
5797, (15,) Coarse feldspathic rock, 303′ do.
back from edge of creek in woods, measuring along creek to line of strike of rocks.

Locality 94.

Extensive exposure, extending nearly across the creek from west side; forming mill-dam of Sedden's (now Bringhurst's) mill, ½ mile from Fox Chase road.
5798, (1,) White feldspathic rock, 9′ above breast of dam.
5799, (2,) do. 8′ below do.

Locality 95.

About 300 yards below Sedden's or Bringhurst's mill, on east side of Pennypack creek, an extensive exposure of micaceous rock, not far from the creek, in thicket.
5800, (1,) Close-grained, finely laminated hornblendic schist, with garnets. From east end of exposure.
5801, (2,) do. do. 3′ below No. 1.

Locality 96.

About 600 yards below Bringhurst's mill, several exposures, close to creek and along hillside, about 300 yards above stone-arched bridge, at Gordon's mills; all on east side on Pennypack creek.
5802, (1,) Fine-grained gray schist. From north end of exposure on hillside, and 59 paces below line fence dividing the Gordon and Henderson farms.

5803, (2.) Dark hornblendic schist, 12′ below No. 1.
5804, (3.) do. 26′ do.
5805, (4,) do. 39′ do.
5806, (5,) Close-grained gneiss, with garnets, 54′ do.
5807, (6,) Gray gneissic schist, 66′ do.
5808, (7,) do. with garnets, 77′ do.
5809, (8,) Dark hornblendic schist, 74′ below No. 7.
5810, (9,) do. 10′ below No. 8.
5811, (10,) Close-grained quartzose schist, 19′ do.
5812, (11,) do. 43′ do.
5813, (12,) Gray schist, 58′ do.
5814, (13,) Coarse gray mica schist, 70′ do.
5815, (14,) do. 87′ do.
5816, (15,) do. 98′ do.
5817, (16,) do. 108′ do.

Locality 97.

In 23d ward, city of Phila., quarry opening on west side Pennypack creek, near abutment of bridge (built in 1800). There are also exposures of rock below bridge, on both sides of creek, all on property of Wm. Gordon.

5818, (1,) Dark hornblendic schist, 15′ above upper side of above-named bridge.
5819, (2,) Gray mica schist, 39′ below spec. No. 1, and on line with lower side of same bridge, outcropping some distance down creek.
5820, (3,) Coarse gray schist, 126′ below No. 2, W. side of creek, just below bridge.
5821, (4,) Gray mica schist, 155′ below No. 2.
5822, (5,) do. 182′ do.
5823, (6,) do. 202′ do.
5824, (7,) Dark hornblendic schist, 240′ below spec. 6, on hillside, west side of creek.

Locality 98.

On east side of Pennypack creek, about 400 yards below Gordon's mill, in woods, just at line fence; micaceous gneiss

rock at water's edge, and cropping out at hillside on property of Robert Henderson.

5825, (1,) Gray mica schist, close to first line fence on Henderson's farm, below road, at Gordon's mill, on hillside, east side of creek, N. of fence.

5826, (2,) do. 46′ below spec. 1, and just south of fence.

Locality 99.

Extensive outcrop of micaceous rock, extending for 100 yards above the Catholic church at Lagrange, (¼ mile west from Bustleton.) Very large rocks rising 60′ or 70′ above water surface. Also exposures at east end of bridge crossing creek, (Bustleton & Frankford turnpike,) and for some distance below bridge. The outcrops above bridge are on property of Anna Wendell. There are also two quarries just below the bridge, east side of creek, and outcrop on west side of creek, near mill-race; property of Wm. Biddle. This locality also embraces outcrop at edge of water, in woods, 200 yards below bridge west side of creek; all near J. B. Willing's Calico Print Works.

5827, (1,) Compact schist, stained by decomposition. About 100 yards above road bridge crossing Pennepack creek, east side, and from most northerly end of exposure.

5828, (1,) Coarse micaceous schist, do. do.

5829, (2,) do. do. 37′ below No. 1.

5830, (3,) Gray schist, 77′ do.

5831, (4,) do. 119′ do.

5832, (5,) do. 169′ do.

5833, (6,) do. 239′ do.

5834, (7,) do. 160′ below No. 6, and 107′ above upper side of LaGrange road bridge.

5835, (8,) do. on line with upper side of road bridge and 107′ below spec. No. 7.

5836, (9,) do. 45′ below spec. No. 8.

5837, (10,) Fine-grained compact quartzose schist, 1st quarry in bank, 77 paces below spec. 9, measuring direct along creek, east side, and just below line fence dividing properties of D. Flemming and Fred. Wonnenberg.
5838, (11,) Mica schist decomposing, 55′ below No. 10.
5839, (12,) do. from second quarry, 68′ paces below spec. 11, quarry close to creek.
5840, (13,) Fine, compact quartzose schist, with garnets, 54′ below No. 12.
5841, (14,) Gray schist, west side of creek, 90 paces below spec. No. 13.
5842, (15,) do. at edge of creek, 44′ below spec. No. 14.
5843, (16,) do. high bluff in bank, 72′ below spec. No. 15.
5844, (17,) do. 115′ below spec. 15.

Locality 100.

On east side Pennypack creek about 400 yards below bridge crossing creek at LaGrange, two outcrops of micaceous rock, one north of line fence and white gate on property of Mr. Evans; the other south of fence on property of Richard Shay.

5845, (1,) Fine-grained schist, 86′ above line fence.
5846, (2,) Coarse schist with garnets, 52′ below fence property of R. Shay.
5847, (3,) do. 42′ below spec. No. 2, property of Richard Shay.

Locality 101.

At breast of dam, Fleetwood Lodge carpet yarn-mills, and extending 100 yards up creek, west side, (micaceous rock.)

5848, (1,) Fine-grained gray schist, 278′ above breast of dam, west side, along line of road.
5849, (2,) Coarse feldspathic rock, 85′ below No. 1.
5850, (3,) Mica schist, 248′ do.
5851, (4,) do. 300′ do.
5852, (4,) do. 300′ do.
5853, (5,) Coarse feldspathic schist, 325′ do.

5854, (6,) Fine-grained mica schist, 357′ below No. 1.
5855, (7,) Coarse mica schist, with garnets, 383′ do.
5856, (8.) Mica schist, 430′ do.

Locality 102.

Outcrop of micaceous gneiss, east side of Pennypack creek about 400 yards from Fleetwood Lodge mills, and just east from public road and about 50′ from edge of creek. Exposure of same rock at road side in road and at edge of creek 365′ south from last point.

5857, (1,) Compact gray schist, from most northerly edge of exposure about 400 yards below Lodge mills and about 50′ back from creek.
5858, (2,) Coarse schist, 15′ below spec. No. 1.
5859, (3,) Decomposing feldspathic rock, 380′ below spec. 1, and just at edge of creek.

Locality 103.

Old quarry in field west side of Pennypack creek, opposite home of William Schollenberger, probably ¾ mile below Lodge mills, on property of Mr. Bartlett.

5860, (1,) Hornblendic schist, from south end of quarry.
5861, (1,) do. do.

Locality 104.

Outcrop of micaceous sandy rock and syenite, east side of Pennypack creek about 400 yards south from loc. 103, on property of Wm. Clark, 1½ miles above Pennypack Print works, and about ½ mile across lots.

5862, (1,) Gray schist, feldspathic, from most northerly end of outcrop.
5863, (1,) do. stained, do.
5864, (2,) Hornblendic schist, 18′ below No. 1.
5865, (3,) Gray mica schist, 70 paces below spec. No. 3, little exposure in bank, east side of creek.
5866, (3,) do. do.

Locality 105.

Outcrop of micaceous sand rock in woods, east side of

creek, ½ mile above print works, also exposure on opposite side of creek, property of Joseph Hartel. This locality is noticeable by the occurrence of a very large bowlder about 25 yards from edge of marsh in woods, east side of creek.

5867, (1,) Gray hornblendic schist, most northerly edge of outcrop, east side of creek.

5868, (2,) Gray mica schist, 8′ below No. 1.

5869, (2,) do. 8′ do.

5870, (3,) Close-grained black hornblendic? rock 32 paces below spec. No. 2. Gneiss rock back in woods.

Locality 105a.

Quarry on west side of creek about ⅜ mile above print works on Oxford and Lower Dublin poor-house farm. Large cherry tree stands over quarry.

5871, (1,) Gray feldspathic schist, from north end of quarry.

5872, (2,) Decomposing schist, 27′ below No. 1.

Locality 106.

Quarry on west side of creek, ¼ mile above print works on Oxford and Lower Dublin farm.

5873, (1,) Fine-grained black hornblendic schist, from end of quarry.

5874, (2,) Gray gneiss, 51′ below No. 1.

5875, (3,) do. 75′ do.

Locality 114.

Exposure of micaceous and sandy rock in and at side of Race street, Holmesburg, about 200 yards below turnpike bridge and about 100 yards above Race street wharf.

5876, (1,) Dark gray mica schist, from north end of exposure about 200 yards below turnpike bridge.

5877, (2,) Decomposing schist, 24′ below spec. No. 1, and about 90′ from N. W. corner of George Pennock's grist-mill.

Locality 115.

Richard J. Dobbin's quarry, opposite Wilson's dye-house, east side of Pennypack creek and a short distance above 5 O².

Holmesburg Junction, Penn'a R. R., 23d ward, city of Phila.

5878, (1,) Decomposing mica schist. From most northern point in quarry and 83′ below fence running along creek.

5879, (2,)	Mica schist,	34′	below spec. 1.
5880, (3,)	Coarse do.	108′	do.
5881, (4,)	do.	162′	do.
5882, (5,)	do.	202′	do.
5883, (6,)	do.	252′	do.

Locality 116.

Quarry on east side Pennypack creek; worked by House of Correction. Exposure on opposite side of creek, just below railroad bridge, visible at low tide only; also an extensive quarry on west side, belonging to the Fuller estate; also below State road bridge, on east side of creek, there is an abandoned quarry, belonging to House of Correction property.

5884, (1,) Grayish micaceous schist. From east end House of Correction quarry, east side of creek.

5885, (2,)	Fine-grained do.	44′	below No. 1.
5886, (3,)	do. do. same quarry,	148′	do.
5887, (4,)	do. do.	390′	west. From spec. 3 and from Fuller quarry, east side of creek.
5888, (5,)	Dark gray schist,	8′	below No. 4.
5889, (6,)	Gray schist,	44′	do.
5890, (7,)	do.	63′	do.
5891, (8,)	do.	107′	do.

5892 to 6108—SECTION E—1878.

Along N. P. R. R. and Tacony creek, from Willow Grove station, on the N. E. P. railroad, to Frankford, 23d ward, city of Philadelphia.

Locality 149.

Exposure of slaty (ferruginous) rock in railroad cut, N. E. Penn. R. R., ½ mile S. W. from Willow Grove station; also at roadside near by (Germantown plank road,) in Abington Twp., Montgomery Co. Specimens selected from railroad cut only.

5892, (1,) Slaty sandstone, 370 paces southwest from switch connection of siding of Messrs. Shaw and Newport bone factory.
5893, (2,) Slaty sandstone, decomposing, 12′ below No. 1.
5894, (3,) White sandstone, 21′ do.
5895, (4,) Slaty sandstone, 35′ do.
5896, (4,) White sandstone, 35′ do.
5897, (5,) Slaty sandstone, Iron oxide stains, decomposing, 50′ do.
5898, (6,) do. do. 69′ do.
5899, (7,) do. do. 91′ do.
5900, (8,) do. do. 123′ do. and just at north pier of Welch Road bridge crossing over track.
5901, (8,) do. do. 123′ below No. 1.
5902, (9,) do. do. 143′ do.
5903, (10,) do. do. 166′ do.
5904, (11,) do. do. 177′ do.
5905, (15,) do. do. 202′ do.
5906, (13,) do. do. 228′ do.

Locality 216.

Extensive exposure of Edge Hill rock in N. P. railroad cut at Edge Hill village.

3007. 1. White sandstone, 4' above upper side of Lime-kiln turnpike bridge, measuring along railroad track.

3008.	2.	do.	35	below No. 1.
3009.	3.	do.	13	do.
3010.	3.	do.	13	do.
3011.	4.	do.	16	do.
3012.	5.	do.	195	do.
3013.	6.	do.	23	do.
3014.	7.	do.	259	do.
3015.	8.	do. with tourmaline.	30	do.
3016.	9.	do. do.	325	do.
3017.	9.	do. do.	325	do.
3018.	10.	do. do.	352	do.
3019.	11.	do.	389	do.
3020.	12.	do. hydro-mica.	411	do. and on line of upper side of turnpike bridge.
3021.	13.	do. do.	28	below No. 12.
3022.	13.	do. do.	28	do.
3023.	14.	do. do.	66	do.
3024.	15.	do. do.	106	do.
3025.	15.	do. do.	106	do.

Locality 117.

Just north from Jenkintown Junction (N. P. R. R. and B. B. R. R.) an exposure of rock west side of Tacony creek, opposite railroad bridge; there is also an exposure of rock in cut and on public road (Jenkintown road) near by.

3026. (1,) Decomposing garnetiferous mica schist, 62 yards north of small stream bridge crossing Jenkintown wagon road, at roadside.

3027. (1,) do. do.

3028. (2.) do. 28' below No. 1.

3029. (3,) Close grained porphyritic schist, with garnets. 150' below No. 2.

From exposure in field on property of N. P. Railroad Company, measuring across strike.

5930, (4,) Compact hornblendic schist, 265 paces below No. 3, and from west side of railroad cut (N. P. R. R.) a short distance above Jenkintown Junction, measurement made by pacing across strike from exposure in field to railroad cut.

5931, (5,) Hornblendic schist, 43′ below specimen No. 4, west side of railroad, in cut.

5932, (5,) do. do.

5933, (6,) do. do.

93′ below specimen No. 5, east side of railroad, in cut.

5934, (6,) do. do.

Locality 118.

Outcrop of micaceous rock, just opposite Jenkintown station on west side of Tacony creek, near Edge Hill road, and north of public road leading to Jenkintown, also quarry on same road to the south, on property of Mr. Kent; also exposure at east side N. P. R. R. and also extensive quarry on east side of creek and railroad, property of Henry Whisler, all in Cheltenham Twp., Montgomery Co.

5935, (1,) Gray mica schist, west side of Tacony creek, just opposite Jenkintown station, 80 paces north of center of road leading towards Jenkintown.

5936, (1,) do. do.

5937, (2,) White feldspathic gneiss, biotite, 8′ below No. 1.

5938, (3,) do. stained, 39′ do. and 67 paces north from center of Jenkintown road.

5939, (4,) Brownish mica schist, 140′ south of center of Jenkintown road, west side of creek in N. P. R. R. cut.

5940, (4,) Gray mica schist, do.

5941, (5,) Fine-grained compact, quartzose schist, 36′ below No. 4.

5942, (6,) Hornblendic schist, 72′ do.

5943, (7,) Fine-grained garnetiferous schist, 104′ do. and from N. end of the Whisler quarry.

5944, (7,)	Coarser, garnetiferous schist, and from N. end of the Whisler quarry.	104′	below No. 4,
5945, (8,)	Gray mica schist,	136′	do.
5946, (8,)	Coarse brown garnetiferous schist,	136′	do.
5947, (9,)	Coarse garnetiferous schist,	168′	do.
5948, (10,)	do. decomposing,	200′	do.
5949, (11,)	White feldspathic rock, biotite,	244′	do.
5950, (12,)	Fine-grained gray schist,	273′	do.
5951, (13,)	do.	321′	do.
5952, (14,)	do.	369′	do.
5953, (15,)	Gray mica schist, with garnets,	434′	do.
5954, (15,)	do. do.	434′	do.

Locality 119.

Outcrop of micaceous rock on east side of creek, just south from Chelton Hills station, N. P. R. R., also two exposures in railroad cuts just S. from station.

5955, (1,)	Coarse mica schist, at north end of cut,	277′	below center of Washington lane crossing.
5956, (2,)	do.	44′	below No. 1.
5957, (3,)	do.	90′	do.
5958, (4,)	do.	135′	do.
5959, (5,)	Gray mica schist, 2d cut,	291′	do.
5960, (6,)	do.	379′	do.
5961, (7,)	White feldspathic mica schist,	411′	do.
5962, (8,)	Coarse mica schist,	37′	below No. 7.
5963, (9,)	do.	101′	do.
5964, (9,)	Fine-grained schist,	101′	do.
5965, (10,)	Gray mica schist,	158′	do.
5966, (11,)	Dark hornblendic schist,	211′	do.
5967, (12,)	Coarse mica schist,	274′	do.
5968, (12,)	do. garnetiferous,	274′	do.
5969, (13,)	Dark hornblendic schist,	337′	do.
5970, (14,)	Coarse micaceous schist,	472′	do.

Locality 120.

Outcrop of micaceous rock, just south from railroad bridge crossing creek, bridge 123 paces below spec. 14 of locality 119, measuring along railroad. This locality embraces two cuts near house of Jos. Childs, and is at Church road station N. P. R. R.

5971, (1,) Coarse micaceous schist, in first cut, 94 paces below center of above named bridge, and from north end of cut.
5972, (2,) do. 69′ below No. 1.
5973, (3,) Gray quartzose schist, in 2nd cut, 585′ below spec. No. 2, and 142′ above center of Church road bridge.
5974, (4,) Coarse mica schist, 15′ below No. 3.
5975, (5,) Dark hornblendic schist, 61′ do.
5976, (6,) Coarse mica schist, 101′ do.
5977, (6,) Coarse and fine-grained gray schist, 101′ do.
5978, (7,) Coarse gray schist, west side of railroad, 142′ below spec. No. 3 and at center of Church road bridge.
5979, (7,) do. do.
5980, (8,) do. 245′ below No. 3, and 103′ below center of Church road bridge.

Locality 121.

Extensive exposure of rock in railroad cut at York road station, N. P. R. R.

5981, (1,) Dark hornblendic schist, north end of cut, 328 paces below spec. No. 8, of loc. 120.
5982, (2,) Gray mica schist, 163′ below No. 1.
5983, (3,) Dark do. 223′ do.
5984, (4,) Gray schist, 254 below spec. No. 1.
5985, (4,) do. do.
5986, (5,) Coarse, do. 54′ below No. 4.
5987, (6,) Dark hornblendic schist, 92′ do.
5988, (7,) Coarse mica schist, 117′ do.
5989, (7,) do. 117′ do.

5990, (8,) Coarse mica schist, 169′ below No. 4.
5991, (9,) Hornblende schist, (dark,) 211′ do.
5992, (10,) Gneissoid mica schist, 268′ do.
5993, (11,) Syenitic gneiss, 304′ do.
5994, (12,) Mica schist, . 347′ do.
5995, (13,) Fine-grained micaceous gneissoid schist, 424′ do.
5996, (14,) do. do. 479 do.
5997, (14,) do. do. 479 do.

Locality 217.

Extensive exposure in railroad cut, N. P. R. R., just south from Ashbourne station, of decomposed micaceous schist, extending southward nearly to City Line station.

5998, (1,) Fine-grained sandy micaceous schist, in first cut, 162 yards south from center of Chelten Ave., Ashbourne station, and from north end of cut.
5999, (2,) do. do. 60′ below No. 1.
6000, (3,) do. do. 84′ do.
6001, (4,) do. do. 106′ do.
6002, (5,) do. do. 134′ do.
6003, (6,) do. 158′ do.
6004, (7,) do. do. 86 paces below No. 6, measuring on line of R. R.
6005, (8,) Fined-grained gneissoid schist, 67′ below No. 7.
6006, (9,) do. do. 110′ do.
6007, (10,) do. do. 150′ do. and just at E. pier of road bridge crossing at city line station.
6008, (11,) do. do. 195′ do.
6009, (12,) do. do. 236′ do.

Locality 218.

Exposure of micaceous schist in railroad cut and in field near railroad, property of Mrs. Rohrer, just north from Oak lane station and near city line, (Cheltenham Twp.)

6010, (1,) Gneissoid mica schist, from north end of cut and just at upper side of wagon road leading to Mrs. Rohrer's house.

6011, (2,) Gneissoid mica schist, 40′ below No. 1.
6012, (3,) do. 77′ do.
6013, (4,) do. from exposure in Mrs. Rohrer's field 62′ below spec. No. 3, measuring along line of railroad.

Locality 219.

Extensive exposure of micaceous and gneiss rock in railroad cut, N. P. R. R., 22nd ward, city of Philadelphia; extending from a point just south from Oak lane station about ¼ mile southward.

6014, (1,) Dark hornblende schist, east side of cut, 111 paces below Oak lane station, measuring direct along railroad.
6015, (2,) Coarse gneissoid mica schist, 70 paces below No. 1, measuring along railroad.
6016, (3,) Mica schist compact, with garnets, 10′ below No. 2. and 69′ north from Oak lane road bridge.
6017, (4,) Gneissoid schist, with garnet, 42′ below No. 2 and 43′ south of north end of Oak Lane bridge.
6018, (5,) Hornblendic schist, with large garnets, 57′ below No. 2.
6019, (6,) do. do. 81′ do.
6020, (7,) do. do. 106′ do.
6021, (8,) Mica schist, 124′ do.
6022, (9,) Gneissoid mica schist, with garnets, 136′ do.
6023, (9,) Gneissoid mica schist, 136′ do.
6024, (10,) Quartz, feldspar and mica, 161′ do.
6025, (11,) Mica schist, 175′ do.
6026, (12,) do. 205′ do.
6027, (13,) Quartz, feldspar and mica, 215′ do.
6028, (14,) Fine-grained gneissoid mica schist, 225′ do.
6029, (15,) do. 240′ do.
6030, (16,) Quartz, feldspar and mica, 260′ do.
6031, (17,) Mica schist, 296′ do.
6032, (18,) Gneissoid schist, 332′ do.
6033, (19,) Mica schist, 372′ do. and under center of Davis' or Burns' lane bridge.

6034, (20,) Hornblendic schist. 390′ below No. 2.
6035, (21.) Mica schist; 58 paces below spec. No. 20, measuring along line of railroad.
6036, (22.) Mica schist; 125 paces below spec. No. 21, measuring along line of railroad.

Locality 220.

Just north from, and near Green Lane station, N. P. R. R., an extensive exposure of micaceous sandy rock, with a vein of hard blue syenitic rock. There is also an exposure of micaceous rock at road, (Green Lane,) just south from station house.

6037, (1,) Gneissoid mica schist, fine-grained, west side of track and most northern end of cut.
6038, (2,) Hornblendic schist, garnetiferous, 54′ below No. 1.
6039, (2,) do. 54′ do.
6040, (3,) Gneissoid mica schist, 108′ do.
6041, (3,) do. 108′ do.
6042, (4,) do. 200′ do.
6043, (5,) do. 263′ do.
6044, (6,) do. 296′ do.
6045, (7,) do. back of Green Lane station house, N. P. R. R., 132 paces below spec. No. 6, measuring along railroad, in bank on property of Miss Fox.
6046, (8,) 51′ below No. 7.

Locality 130.

Exposure in old quarry, east side of creek, on property of John Emory, just below small stream, about 1 mile below Cheltenham P. O. Also outcrop on opposite side of creek near public road and near an old chimney; heavy bowlders in creek and outcrop at edge of creek, just above foot log, near Crescentville.

6047, (1,) Gneissoid mica schist; 52 paces below above-named stream, east side of creek, west end of picnic grounds, and near old quarry; measuring direct from small stream to first exposure.

6048, (2,) Gneissoid mica schist, 56′ below No. 1. Second exposure, in path in woods, east side of creek.
6049, (3,) do. 30′ below No. 2.
6050, (4,) do. 65′ do.
6051, (5,) do. About 90 paces below spec. No. 4, west side of creek, just at W. side of old chimney, property of John Emory.

Locality 130a.

Exposure of micaceous rock in woods near line fence, three or four hundred yards above bridge crossing creek (Tacony) at Crescentville, in city limits, on property of James Fisher, and about 40 paces above line fence between properties of James Fisher and Mr. Jones.
6052, (1,) Gneissoid mica schist, fine grained, from east end of exposure.
6053, (2,) do. 31′ below No. 1.

Locality 131.

Exposure of micaceous rock in railroad cut (Philadelphia and Newtown R. R.) at foot of James Brown's land; outcrop commences about middle of cut, second cut above Crescentville station.
6054, (1,) Fine grained garnetiferous mica schist, west side of cut on line of line fence between properties of Jas. Brown and Mr. Winch.
6055, (2,) do. west side of cut, 40′ below spec. No. 1.
6056, (3,) do. east side of cut, 88′ below spec. No. 1.

Locality 132.

Exposure of micaceous rock, at breast of dam and in road at east end of bridge crossing creek at Crescentville, and just below Crescentville mills, west side of creek, at tail race, and above Philadelphia and Newtown bridge crossing creek; also several out-crops of rock at side of railroad and in cut, just below Adams' road crossing.

6057, (1,) Mica schist, from exposure at breast of dam, 36′ from east end of dam, measuring on line of breast of dam, and just above east end of Crescentville bridge.
6058, (2,) do. 30′ below No. 1.
6059, (3,) do. 63′ do.
6060, (4,) do. from quarry on east side of creek, 130 paces below east end of bridge crossing creek, measuring down creek, but only 28 paces below No. 3, measuring across strike.
6061, (5,) do. 28′ below No. 4.
6062, (6,) Micaceous gneiss, from first railroad cut below Crescentville station, Philadelphia and Newtown R. R., about 78 paces below spec. No. 5, measuring across strike.
6063, (7,) do. 8′ below No. 6.

Locality 133.

In 22nd ward, city of Philadelphia, 200 yards west from Second St., Turnpike bridge, crossing creek, there is an old quarry of micaceous rock, on north side of turnpike. There is a partly abandoned quarry of same stone in field about 200 yards south of bridge, west side of creek. A third exposure is seen in woods of Mr. Forbes, west side of creek, just across fence from exposure No. 2, outcropping in several places along hillside and of a more sandy character.
6064, (1,) Mica schist, from 1st quarry, 50′ north from center of Second Street pike.
6065, (2,) do. 25′ bel. No. 1.
6066, (3,) do. from 2nd quarry, 207 paces below center of Second St. pike.
6067, (4,) do. 28′ bel. No. 3.
6068, (5.) do. from 3d exposure, in woods, 47 paces below spec. No. 4.
6069, (6,) do. 34′ bel. No. 5.
6070, (7,) do. 74′ do.

Locality 134.

Exposure of micaceous rock in road at west end of bridge

crossing Tacony creek at Cedar Grove mills, 22d ward, city of Philadelphia. Just below the bridge and dam, at water's edge, and on east side of creek, just below mill, there are several exposures extending for some distance below bridge, the last one being just below Rodger's run.

6071, (1,) Fine-grained gneissoid schist, first exposure, 115 paces west from west end of bridge crossing creek at Cedar Grove mills, and close to north side of road.

6072, (2,) do. second exposure, just at south side of road, 44′ bel. No. (1.)

6073, (3,) Mica schist, third exposure, south side of road, 77 paces below spec. No. 2, measuring along line of road, and about 25 paces west from west end of bridge, at Cedar Grove mills.

6074, (4,) do. just below bridge at breast of dam, and 43′ below spec. No. 3, measuring across strike, at Cedar Grove mills.

6075, (5,) do. from quarry on east side of creek, east of Whittaker's mills, 126 paces below spec. No. 4, measuring direct along line of road.

6076, (6.) Hornblendic gneiss, 12′ below No. 5.

6077, (6,) do. 12′ do.

6078, (7,) Mica schist, 100 paces below No. 6, measuring along creek, direct and from near Rodger's run.

6079, (7,) do. do.

Locality 135.

On east side of creek, at upper end of field, just in edge of woods, probably ⅛ mile below Cedar Grove mills, there is quite an extensive outcrop of micaceous rock, property of Mr. Poole.

6080, (1,) Mica schist, from top of first exposure, edge of creek.

6081, (2,) do. from second exposure, further back in woods, and 20′ below spec. No. 1, measuring across strike.

Locality 136.

Quarry of blue or bluish gray syenitic rock, on west side of creek, just opposite breast of Rowland's mill-dam, outcrops of same rock, just below quarry, on same side of creek.

6082, (1,) Gneiss, garnetiferous, from west end of exposure, just below line fence.

6083, (2,) Hornblendic gneiss, 25′ bel. No. 1.

Locality 137.

Quarry of blue gneissic rock on property of Mr. J. A. Hoffman, east side of Tacony creek, and about 250 yards above stone bridge crossing creek, (Fisher's Lane bridge.) There are also exposures of same rock at west end of bridge, near house in woods, and on hillside just west of Hoffman's barn.

6084, (1,) Hornblendic gneiss, from north end of exposure.

6085, (2,) do. 60′ below No. 1.

6086, (3,) do. 120′ do.

6087, (4,) do. from second exposure, at Hoffman's barn, 130 yards below spec. No. 3, along hillside.

Locality 138.

Quarry of gneiss on properties of Dr. Stetler and R. W. Stewart, and exposures at water's edge, just where creek makes sharp a turn, all on west side of creek, near Frankford. Exposure on east side of creek, in clump of trees, just above ravine, near red dwelling house.

6088, (1,) Hornblendic gneiss, from east side of Stetler's quarry, and about 100 paces from creek.

6089, (1,) Gneissoid schist, black mica, small scales, do.

6090, (2,) do. 30′ below No. 1.

and from quarry on property of R. W. Stewart.

6091, (2,) do. do.

6092, (3,) do. 62′ below spec. No. 2, from 3d exposure, at edge of creek.

Locality 139.

Outcrop of rock at breast of dam, and extensive exposure in road cut near mill race. Gneiss and gneiss conglomerate, with copper. This locality is in Frankford, near Powder Mills, west side of creek.

6093, (1,) Gneissoid schist, (black,) north end of cut in road.
6094, (2,) do. feldspathic, 41′ below No. 1.
6095, (3,) do. 74′ do.
6096, (3,) do. feldspathic, garnetif's, 74′ do.
6097, (4,) Quartz, feldspar, mica, 84′ do.
6098, (5,) Mica schist, 94′ do.
6099, (5,) Gneissoid mica schist, 94′ do.
6100, (6,) do. 152′ do.

Locality 140.

East side of creek in upper part of Frankford, just below mills, two large quarries of gneiss. The one nearest the creek owned by Samuel Faunce, the other further east by Isaiah Barber. There is also a quarry of same rock near Powder Mills road, all in Frankford.

6101, (1,) Gneiss, from north end of quarry.
6102, (2,) do. 47′ below No. 1.
6103, (3,) do. 152′ do. and from east end of quarry.
6104, (4,) do. 307′ do. and from south end of quarry.
6105, (4,) do. do.

Locality 141.

Quarry of hard and decomposed gneissic rock, blue in color, in field just above bridge crossing creek, (used by dummy engines,) west side of creek, in Frankford.

6106, (1,) Hornblendic schist, (sandy,) from north end of quarry.
6107, (2,) Hornblendic schist, (mottled,) 58′ below No. 1.
6108, (3,) do. 145′ do.

6109 to 6281—SECTION F.—1878.

Along Wissahickon creek, from Fort Washington station, N. P. R. R., to small iron bridge crossing creek, just below junction of Wissahickon pike and Rittenhouse Street, 22d ward, city of Philadelphia.

Locality 221.

Extensive exposure of New Red Sandstone in railroad cut, N. P. R. R., at Fort Washington station.

6109, (1,) Conglomeratic sandstone, feldspathic, from north end of cut.

6110, (2,)	Sandstone, feldspathic,	10′	below spec.	No. 1.
6111, (3,)	do. fine grained micaceous,	25′	do.	
6112, (4,)	do. drab,	34′	do.	
6113, (5,)	do. yellow,	45′	do.	
6114, (6,)	do. yellow micaceous,	55′	do.	
6115, (7,)	do. fine-grained, red,	68′	do.	
6116, (7,)	do. do.	68′	do.	
6117, (8,)	do. do. micaceous,	79′	do.	
6118, (9,)	do. gray micaceous,	86′	do.	
6119, (10,)	do. red,	94′	do.	
6120, (11,)	do. red,	109′	do.	and

just at upper side of railroad bridge.

Locality 167.

Extensive exposure of ferruginous slaty rock in railroad cut on N. P. R. R., about ½ mile S. E. from Ft. Washington station, White Marsh Twp.

6121, (1,) Sandstone, (Potsdam.) shaly; upper end of cut, west side of track.

6122, (2,)	Sandstone, do. shaly, hydro-mica?	40′	below	No. 1.
6123, (3,)	do. shaly,	70′	do.	
6124, (4,)	do. yellow,	110′	do.	
6125, (5,)	do. do.	158′	do.	

Locality 168.

Exposure of ferruginous slaty rock, (Potsdam SS.,) with some blue and hard white stone, Pine Town road crossing N. P. R. R. about ¼ mile southeast from Fort Washington station, just east of and near track; also on hillside above track and beneath bridge of road leading to Edge Hill; all in White Marsh Twp.

6126, (1,) Sandstone, dark gray; exposure on east side of road crossing N. P. R. R., on hill, 60 paces north from track.

6127, (2,) do. yellow, 34′ below spec. No. 1, and just near track, same side of track.

6128, (3,) do. hydro-mica? 146′ below No. 2, measuring direct along railroad.

6129, (4,) do. dark gray, 192′ do. and just above bridge of road leading to Edge Hill.

6130, (5,) do. yellow, 225′ do.

6131, (6,) do. light gray, 290′ do.

Locality 169.

Extensive quarry of white and blue limestone on property T. J. and J. Wentz, on east side of Wissahickon creek, about 1 mile south from Fort Washington, and just near Bethlehem pike. There is also and old quarry on west side of creek, property of Judge Allison and Mr. Watson.

6132, (1,) Limestone, drab, N. end of quarry.

6133, (2,) do. light blue, 30′ below No. 1.

6134, (3,) do. drab, 100′ do.

Locality 170.

Extensive limestone quarries opposite Joseph Comly's grist-mill, Valley Green, White Marsh Twp., on property of C. A. Yeakle. The second quarry or opening is property of A. Seltzer; all on west side of Wissahickon creek.

6135, (1,) Limestone, drab, from north end of Seltzer quarry.

6136, (2,) do. do. 50′ below spec. 1.

6137, (3,) do. do. 110′ do. and 50 paces north of line fence; also from Seltzer quarry.

6138, (4,) Limestone, drab, from W. end of Yeakle quarry, about ten paces south of line fence and 60 paces below No. 3.
6139, (5,) do. do. 48′ below No. 4.
6140, (6,) do. blue, 80′ do.
6141, (7,) do. drab, 144′ do.
6142, (8,) do. do. 192′ do.

Locality 171.

Two small quarries of limestone, or "bastard marble," on west side of Wissahickon and close to west bank of small creek flowing into Wissahickon creek, about ¼ mile below where Plymouth R. R. crosses creek, near Bethlehem pike. The first opening is in corner of field, property W. A. Yeakle; the second is in field belonging to John Cleever.
6143, (1,) Limestone, drab, from Yeakle quarry.
6144, (2,) do. white, 130 paces below spec. 1, Cleever quarry.
6145, (3,) Marble, white, 133 paces do.

Locality 173.

Extensive trap dyke just below where the Lancasterville road (Sandy Run, Broad Axe, or Blue Bell road) crosses creek. This road meets the township line about ⅛ mile above the residence of Aristides Welch, or about 1⅜ miles above Chestnut Hill. The dyke is visible on both sides of the creek, but is most prominent on the west side, where the specimens were collected. About 300′ south from dyke, on west side of creek, there is an exposure of white slaty limestone, accompanied with compact blue limestone, N. from house of M. Lukens. A third outcrop, similar to the last, is just at Lukens' house. A fourth outcrop, similar to the last, is just south of Lukens' house.
6146, (1,) Trap, 70′ south of line fence dividing properties of Messrs. Williams and Long.
6147, (2,) Marble, white; 110 paces below spec. No. 1, limestone outcrop.
6148, (3,) Limestone, light blue, 25′ below No. 2.

6149, (4,) Limestone, light blue, 200 paces below No. 3, from outcrop above Lukens' house.
6150, (5,) Marble, white, 33′ below No. 4.
6151, (6,) Limestone, light blue, 75 paces below No. 5.
6152, (7,) do. do. from last outcrop, near Lukens' house, 61′ below No. 6.

Locality 188.

Three small limestone quarries, property of Godfrey & Co., outcropping several hundred yards back from the creek, and exposed as an opening on Wissahickon pike, leading from Barren Hill to Flourtown, property of Aristides Welsh, all in Springfield Twp., Montgomery Co. The quarries are a few yards east of wall lane dividing properties of Godfrey & Co. and H. A. Piper, and about 100 yards from creek.

6153, (1,) Blue marble, from blue limestone quarry, 125 paces below, or south from line dividing properties of Welsh and Godfrey & Co.
6154, (2,) do. 32′ below No. 1.
6155, (3,) White marble, 2d quarry, 154′ do.
6156, (4,) do. 170′ do.
6157, (4,) do. 170′ do.
6158, (5,) Marble, light-blue, 3d quarry, 222′ do.
6158*b*, (6,) Hematite, } Lannegan's bank, property of Squire Rex, formerly worked by McAttee. } 450′ below spec. No. 5.
6158*c*, (7,) do.
6158*d*, (8,) do.
6158*e*, (9,) do.

Locality 174.

Small quarry of Edge Hill rock, (Potsdam SS.,) on north side of Wissahickon pike, and 150 yards west from bridge crossing creek. Outcrops on south side of pike also, property of St. Joseph's Convent. This outcrop is seen again about 200 yards further west, at small quarry on property of Mr. Williams, just at cross roads, (Reading pike and and "New Street" junction,) the latter leading to Williams' residence, all in Springfield Twp., about ⅛ mile east of Barren Hill.

6159, (1,) Sandstone, white, hydro-mica, from the most eastern end of quarry, and nearest the bridge.
6160, (2,) Sandstone, white hydro-mica? 30′ below No. 1.
6161, (3,) do. do. 70′ do.
6162, (3,) do. do. 70′ do.

Locality 175.

In 22d ward, city of Phila., on Wissahickon turnpike, ⅛ mile from St. Joseph's Convent, there is an opening of syenitic rock and varieties, property of John McCoy. Stone in opening opposite old house further down the creek, are somewhat micaceous, all on west side of creek.

6163, (1,) Gray gneiss, from north end of exposure, and about 100 yards below where the turnpike turns to Flourtown.
6164, (2,) Hornblendic gneiss, 1st opening, 50′ below No. 1.
6165, (3,) Gray gneiss, do. 60′ do.
6166, (4,) Gneiss, porphyritic, in bank, 108′ do.
6167, (5,) do. do. do. 203′ do.
6168, (5,) do. do. do. 203′ do.
6169, (6,) Micaceous gneiss, do. 258′ do.
6170, (6,) do. do. 258′ do.
6171, (7,) do. 2d opening, 328′ do.
6172, (8,) do. do. 412′ do.
6173, (9,) do. do. 428′ do.
6174, (9,) do. in bank, 428′ do.

Locality 176.

Quarry of mottled granite on Wissahickon turnpike, property of John McCoy, same ridge as Locality 175, just south from stone house mentioned in last locality. Further down the pike there is an opening of blue and somewhat micaceous flagstone.

6175, (1,) Granitoid gneiss, 36′ below spec. No. 9, Locality 175, from granite quarry.
6176, (2,) Granitoid gneiss, 25′ bel. spec. 1.
6177, (3,) do. 43′ do.
6178, (4,) Micaceous gneiss, 90′ do.
high in bank.

6179, (5,) Schistose gneiss, 140′ bel. spec. 1.
6180, (6,) Gneiss, sandy, fine-grained, 202′ do.
6181, (7,) do. 302′ do.
from flagstone opening.

Locality 176a.

This locality consists of all the small exposures of rock in bank and at roadside, occurring between Locs. 176 and 177, and consists of varieties of mica, serpentine and gneiss rock.

6182, (1,) Mica schist, 100 paces below spec. 7, of locality 176, in bank east side of creek.
6183, (1,) do. do.
6184, (2,) Hornblende schist, 50 paces below No. 1.
6185, (3,) Steatite schist, 42′ below No. 2.
6186, (4,) Steatite, 102′ do.
6187, (5,) Steatite schist, 250′ do.
east side of creek, and about 50′ north from Thorpe's lane.
6188, (6,) do. 260′ below No. 2.
6189, (7,) Garnetiferous schist, 520′ below spec. No. 6, west side of turnpike, and 475′ below north side of Thorpe's lane bridge; outcrop is 60′ wide.
6190, (8,) do. 700′ below No. 6, in bank, west side of creek; outcrop about 10′ wide.
6191, (8,) do. do.
6192, (9,) Garnetiferous schist, 15′ outcrop, 970′ do.
6193, (9,) Quartzose schist, do. 970′ do.
6194, (10,) Gneissoid schist, fine-grained, 12′ do. 1076′ do.
6195, (11,) do. 10′ do. 1331′ do.
6196, (12,) do. 5′ do. 1406′ do.
6197, (13,) do. 1526′ do.
6198, (14,) do. 1666′ do. and just above Mr. Robinson's house.
6199, (15,) do. 1718′ do.
6200, (16,) do. 1808′ do.

Locality 177.

Exposure of dark gray rock on east side of Wissahickon creek, opposite Mr. Robinson's house, about ¼ mile below Thorpe's lane, and just above Messrs. Magargee's paper mill No. 1. This locality extends from a point opposite Robinson's house to near mill-dam. At roadside on east side of creek, there is an exposure of micaceous quartzose rock.

6201, (1,) do. east side of creek, just opposite Mr. Robinson's house.
6202, (2,) do. 12′ below No. 1.
6203, (3,) Mica schist, 27′ do.
6204, (4,) Gneissoid mica schist, 37′ do.
6205, (5,) do. 57′ do.
6206, (6,) Gneiss, 168′ do.

Locality 178.

Extensive exposure of micaceous rock extending from near Magargee's mill-dam to Indian Rock hotel. At the beginning of the exposure there is some quartz rock, which was collected from Loc. 177. At the end of the exposure there is an outcrop of micaceous rock, with garnets. At Sand's hotel measurements were made along line of road which nearly corresponds to across line of strike.

6207, (1,) Mica schist, fine-grained, 100 paces below south side of Spruce Mill lane bridge, crossing creek at Magargee's mill, No. 1.
6208, (2,) do. in bank, west side of creek, 320′ below No. 1.
6209, (3,) do. High up in woods, west side of creek, 500′ below No. 1.
6210, (4,) do. 622′ below No. 1.
6211, (5,) do. 864′ do. west side of turnpike, extending from road-side high into woods.
6212, (6,) do. 1494′ do.
6213, (7,) Garnetiferous mica schist, 1928′ do.

contains garnets and extends with but little interruption to the Indian Rock hotel, a distance of 228′. "Indian

Rocks" are included in this locality, situated on east side of Wissahickon creek, and just opposite R. Sand's hotel.

Locality 179.

An exposure of micaceous rock and varieties, occurring on both sides of the creek, and extending from south side of Sand's hotel to below "Pro Bono Publico" fountain, west side of Wissahickon creek. All specimens taken from bank, west side of creek.

6214, (1,) Gneissoid schist, garnetiferous, 20′ below south side of Sand's hotel.
6215, (1,) do. do.
6216, (2,) Garnetiferous mica schist, 60′ below No. 1.
6217, (3,) do. 120′ do.
6218, (4,) do. 176′ do.
6219, (5,) Quartz. 296′ do.
6220, (6,) Gneissoid mica schist, 306′ do. and extending to "Pro Bono Publico" fountain.
6221, (6,) do. do.
6222, (7,) do. 372′ below No. 1.
6223, (8,) Gneissoid schist, fine-grained, 602′ do. and extending 153′ with but little intermission, to a point opposite residence of H. Watson, prop. Magargee estate.

Locality 180.

On east side of creek and crossing creek just at and below Magargee's mill-dam, No. 2. Outcrop of white conglomeritic rock at dam succeeded by mica rocks, garnet and varieties. This locality embraces exposures on both sides of creek, from mill-dam to stone arched bridge, built in 1821, on road leading to Indian Cave hotel, otherwise Springfield Avenue. Specimens all from east side of creek.

6224, (1,) Quartz and feldspar, just opposite Magargee's mill-dam, No. 2.
6225, (2,) Garnetiferous mica schist, 135′ below No. 1.
6226, (2,) do. 135′ do.
6227, (3,) Gneissoid schist, fine-grained, 198′ do.
6228, (3,) Garnetiferous schist, 198′ do.

6229, (4,) Schist, fine-grained, 338′ below No. 1. extending from creek high into woods.
6230, (5,) Garnetiferous schist, 398′ do.
6231, (6,) Gneissoid schist, fine-grained, 571′ do. close to creek and just opposite small house, west side of turnpike, belonging to Magargee estate.
6232, (6,) do. do.
6233, (7,) do. 733′ below No. 1, just below Wise mill lane, and continuing for 445′.
6234, (8,) do. 1158′ do. behind house occupied by Robert Adair.
6235, (9,) do 1365′ do. and just above Hartville Ave.
6236, (9,) do. 1365′ do.
6237, (10,) do. 1530′ do. and 120′ below Hartville Ave. bridge.
6238, (11,) Garnetiferous schist, 1661′ below spec. No. 10, and extends for 75′, or a point about 60′ north of Springfield or Wissahickon Ave. bridge. Red micaceous rock with garnet and bands of harder rock. High rock close to creek, probably 60′ high.

Locality 181.

Micaceous rocks with garnet, extending from just below Valley Green hotel, to Shawmont Ave., Glen Fern Mills, embracing outcrops on both sides of creek to this point.

6239, (1,) Garnetiferous mica schist, 510′ below S. end of Valley Green hotel, west side of turnpike. This measurement is direct along road.
6240, (2,) Gneissoid schist, 55′ below No. 1.
6241, (3,) do. 305′ do.
6242, (4,) do. 453′ do.
6243, (5,) Garnetiferous mica schist, 559′ do.
6244, (6,) Gneissoid garnetiferous mica schist, 578′ do.

6245, (7,) Steatite schist, about 260′ below spec. No. 6, in bank up from creek, east side and about 25′ north from residence of J. Wharvell, (near the old Glen Fern grist-mill.)

6245*b*, (7,) Steatite schist, 260′ do.

Locality 182.

Exposure on east side of creek near pipe aqueduct bridge, extending from above that bridge to bridge crossing creek at Germantown road, or Leverington ave. and includes outcrops on both sides of Wissahickon creek.

6246, (1,) Gneissoid schist, about 150′ south from south end of bridge crossing creek at Shawmont Ave.

6247, (2,) Quartz and mica, 216′ below No. 1.

6248, (3,) Gneissoid schist, 242′ do.

6249, (4,) do. east side, 358′ do.

6250, (5,) do. west side, 770′ do.

6251, (5,) Hornblendic schist, west side, 770′ do.

6252, (6,) Gneissoid schist, east side, 1065′ do.

6253, (6,) Hornblendic schist, east side, 1065′ do.

6254, (7,) Gneissoid mica schist, 1195′ do.

6255, (8,) Hornblendic schist, 1295′ do. in bank near creek, east side, from old quarry about 50′ up hill from Leverington Ave.

Locality 182a.

Embraces exposures on both sides of creek from Germantown (or Leverington Ave.) road to bridge crossing creek at Kitchen's lane. Collections made only on west side of turnpike.

6256, (1,) Gneissoid schist, 30′ below S. side of Allen's lane or Leverington Ave. bridge.

6257, (1,) do. do.

6258, (2,) Hornblendic schist, 133′ below No. 1.

6259, (3,) Gneissoid schist, 301′ do.

6260, (4,) Mica schist, 690′ do.

6261, (5,) Gneissoid mica schist, 1752′ do.

6262, (6,) do. 1932′ do.

Locality 183.

Exposures on both sides of creek, from Kitchen's Lane to Lattice (or Red) Bridge at Shur's Lane.

6263, (1,) Gneissoid mica schist, east side of creek in woods about 160 paces along path, south from Kitchen's Lane Bridge.

6264, (2,) Mica schist, 315′ below No. 1, east side, in woods.

6265, (2,) do. do.

6266, (3,) do. 375′ do.

6267, (4,) do. 435′ do. west side, just at turn of road to the left.

6268, (5,) do. 677′ below No. 1.

6269, (6,) Gneissoid schist, 922′ do.

6270, (7,) Gneissoid mica schist, 1022′ do.

6271, (8,) do. 1048′ do.

6272, (9,) do. } west end of { 1162′ do.

6273, (9,) do. } Shur's bridge, { 1162′ do.

Locality 184.

Exposures from Lattice bridge (Shur's lane) to small iron bridge crossing creek. The rocks in this locality repeat themselves after passing the intersection of Wissahickon pike with Rittenhouse Street.

6274, (1,) Gneissoid schist, just at N. E. corner of Shur's lane bridge.

6275, (2,) Mica schist, 50′ below No. 1.

6276, (3,) Gneissoid schist, 90′ do. from bank east side of turnpike.

6277, (4,) do. 130′ do.

6278, (5,) do. 210′ do.

6279, (6,) do. 390′ do.

6280, (6,) do. 390′ do.

6281, (7,) do. 600′ below spec. No. 7, just near where creek takes a sudden turn to the right, at Rittenhouse Street.

6282 to 6335—MISCELLANEOUS LITHOLOGICAL COLLECTION.

6282, Quartz, conglomerate, from Edge Hill bridge, east of Willow Grove, south of "The Rocks," and just northeast of John Berrell's house, Moreland Twp., Montgomery Co.

6283, Sandstone and quartzite, with hydro-micas and specular iron ore, Edge Hill village, Cheltenham Twp., Montgomery Co.

6284, Limonite, Lannigan's ore bank, close to junction of Bethlehem and Wissahickon pikes, between Chestnut Hill and Flourtown, Springfield Twp., Montgomery Co.

6285, Coarse-grained granite, with massive feldspar and quartz, from vein in road near powder mill race, Frankford, Phila.

6286, Pectolite on granitic rock, Frankford quarries, Frankford, Phila.

6287, Soapstone and talc, Prince's soapstone quarry, Lafayette station, Springfield Twp., Montgomery Co.

6288, Soapstone and talc, do.

6289, Corundum in feldspathic rock, Black Horse, Delaware Co.

6290, Feldspar, orthoclase (cassinite,) Mineral Hill, Delaware Co.

6291, Chromic iron ore, Williamson's property, Delaware Co.

6292, Celestine, Bell's Mills, Blair Co.

6293, Limestone, New Bethlehem, Clarion Co.

6294, Limonite, New Bethlehem, Clarion county.

6295, Limonite, Red Bank, 2 miles south of Williamsburg, Blair Co.

6296, Limonite, Dean's mine, 1¼ miles S. S. W. of Williamsburgh, Blair Co.

6297, Iron ore with copper, Jones' mine, Berks Co., near Joanna sta., W. and N. R. R. Presented by J. H. Harden.

6298, Laurentian rock, Seisholtzville, Berks Co. Presented by E. V. D'Invilliers.

6299, Syenite, near Claytonville, about ⅛ mile N. W. from Pike road leading to Reading, Berks Co.

6300, Massive, dark blue limestone, property of David Schall, Esq., quarry, (Station 884,) near Dale Forge, ⅛ mile from Trollinger's "Dale Forge Hotel," Berks Co.

6301, Black slate, from do.

6302, Sandy gneiss, on hill near sta. 856, near Dale Forge and ⅛ mile from Trollinger's Dale Forge Hotel, Berks county.

6303, Sandy micaceous gneiss, on summit of hill near sta. 910, ½ mile from Dale Forge and Barto, Berks Co.

6304, White limestone, from quarry on estate of David Schall, near sta. 454c, and near Dale Forge, ⅛ mile from Trollinger's Dale Forge Hotel, Berks Co.

6305, Grey limestone, from do.

6306, Bastard limestone mixed with layers of slate, from do.

6307, Dark grey slate, from do.

6308, Dark blue massive limestone, from quarry not worked at present, at sta. 868, near Dale Forge, ⅛ mile from Trollinger's hotel on road to Landis' store.

6309, Light grey slate, sta. 868, near Dale Forge, ⅛ mile from Trollinger's hotel.

6310, Grey slate, sta. 1107, near do.

6311, Magnetite, from old opening on property of A. Shultz, near sta. 7792, and near Treichlersville, Hereford Twp., Berks Co.

6312, do. from Graphite holes, near sta. 8548, near Seisholtzville, Berks Co.

6313, Magnetite, from Wm. A. Ingham's mine, property of Abs. Beitler near sta. 2215 and 2216, and near Beitler's house, Rockland Twp., Berks Co.

6314, Fucoid, (slickensides,) 2½ miles S. E. of Warren. H. M. Chance.

6315, Slickensides in conglomerate, Salamanca rock. do.
6316, Conglomerate, Hebron P. O., Fishing creek. C. A. Ashburner.
6317, Chemung conglomerate, on hill south from Hebron P. O. do.
6318, Loose conglomerate, very abundant on Fishing creek, 1 mile below Hebron P. O. do.
6319, Red fire stone, Chemung conglomerate? 1 mile S. E. from East Hebron. do.
6320, Chemung conglomerate? near old saw-mill, 1 mile S. E. from do. do.
6321, Lamont conglomerate, contains fish remains. do.
6322, Red shale, at Newton & Bishop's saw-mill, ½ mile west of Sharon Centre. do.
6323, Do. from summit above lower Coudersport quarry. do.
6324, Quartz pebble found in coal bed B, at Antrim mines south of Wellsboro'. F. Platt.
6325, River drift, from Warren, Warren Co.
6326, Glacial drift, from do.
6327, Drift, found under 25,000 barrel oil tank of Olean Pipe Line, Olean, Cattaraugus Co., N. Y.
6328, Lead and zinc ore, Guymard, Orange Co., N. Y.
6329, do. near Birmingham, Sinking Valley, Blair Co.
6330, Fossil iron ore, out of Cambria Iron Co.'s drift, 1 to 2 miles N. W. from Frankstown, Blair Co.
6331, Hematite, Ironton Co.'s mine, Ironton, Lehigh Co.
6332, Do. Pennington Ridge, Warrior's Mark, Huntingdon Co.
6333, Drusy quartz, near Lenni, Delaware Co.
6334, Weathered syenite, from serpentine in West Chester and Philadelphia R. R. cut at Lenni.
6335, Do. from road, ½ mile west of Lenni.

6336 to 6399—P. FRAZER, JR.—1879.

6336, (2100,) Chloritic schist, T. Harvey's, ½ mile N. of Green valley, Newtown Twp., Chester Co.

6337, (2101,) Black-stained milk quartz, ½ mile south of Embrieville, Chester Co.

6338, (2102,) Chloritic schist, McCall's Mill quarry, Newlin Twp., 1½ miles S. E. of Embrieville.

6339, (2103,) Syenite (?) Pocopson school-house, Pocopson Twp., Chester Co.

6340, (2104,) Talcose chlorite, Stewart's, 1½ miles S. E. of Embrieville, Chester Co.

6341, (2105,) Gneiss, with Hyalite, on middle N. & S. road, near West Chester turnpike, Willistown Twp., Chester Co.

6342, (2106,) Serpentine, ½ mile S. W. of Locust Grove, Chester Co.

6343, (2107,) Micaceous sandstone, mesozoic, east end of Green valley, Chester Co.

6344, (2108,) Crystalline limestone, Caleb Cope's limestone quarry, about 1 mile W. of West Chester.

6345, (2109,) Weathered dolerite, S. W. corner of West Chester.

6346, (2110,) Magnesite, from chlorite schists, ½ mile south of Paoli, Chester Co.

6347, (2111,) Laminated talc schist, containing quartz, ½ mile west of Mons Way's, East Marlboro' Twp., Chester Co.

6348, (2112,) Quartz rock, with conchoidal fracture, 1½ miles north of Compassville, Lancaster Co.

6349, (2113,) Orthofelsite porphyry, 1½ miles S. E. of Abbottstown, Adams Co.

6350, (2114,) Slate rocks, chlorite, &c., along the canal near Peach Bottom, York Co.

6351, (2115,) Chlorite schist, 800 meters above narrowest part of river.
6352, (2116,) do. foot of York Furnace bridge, York Co.
6353, (2117,) do. Lock No. 9, York Co.
6354, (2118,) do. canal bank, opposite first stream north of McCall's Ferry, York Co.
6355, (2119,) Chloritic gneiss, first cut near York Furnace, York Co.
6356, (2120,) Coarse-grained quartzite, ½ mile N. W. of Morristown, Chester Co.
6357, (2121,) Chlorite schist, canal bank, 300 meters N. of narrowest part of river, York Co.
6358, (2122,) Chlorite, Doyles Ferry, York Co.
6359, (2123,) Specular iron ore and magnetite, New Hopewell mine, Chester Co.
6360, (2124,) do. do. Green's mine, ½ mile south of Isabella Furnace, Chester Co.
6361, (2125,) Dolerite fragment, near freight-house, Downingtown, Chester Co.
6362, (2126,) Crystalline schist, ½ mile N. E. of Bartville, Lancaster Co.
6363, (2127,) Mica schist, 1 mile south of Georgetown, Lancaster Co.
6364, (2128,) Amethystine quartz, conglomerate, Hopewell, old Middle bank, 1½ miles N. E. of Springfield, Chester Co.
6365, (2129,) Feldspathic gneiss, Garrett's house, 7 miles E. of West Chester.
6366, (2130,) White quartzose sandrock, ¼ mile N. W. of Parksburg, Chester Co.
6367, (2131,) Feldspathic gneiss and dolerite, ½ mile S. W. of Bellevue, Lancaster Co. (?)
6368, (2132,) Rotten arenaceous gneiss, near Gap and Bellevue, Lancaster Co.
6369, (2133,) Gneiss, Cambridge, Lancaster Co.
6370, (2134,) Quartz slates, Martin Oberholzer's, Lancaster Co.

6371, (2135,) Gray gneiss, 300 meters west of Peter Vame's, Chester Co.
6372, (2136,) Feldspathic rock, Summontown church, Lancaster Co.
6373, (2137,) Syenite, ½ mile south of Cambridge, Lancaster Co.
6374, (2138,) Chloritoid slate, ¼ mile east of Swan Inn, Chester Co.
6375, (2139,) Quartz conglomerate, ½ mile north of Meadeville, do.
6376, (2140,) Diabase, (?) 1 mile do.
6377, (2141,) Iron ore, (?) Hopewell Middle mine dump, (new opening,) 1½ miles N. E. of Springfield.
6378, (2142,) Ferruginous sand rock, large bowlder Glen Loch.
6379, (2143,) Trap, ¾ mile N. W. of Manheim station, Lancaster Co.
6380, (2144,) Indurated mud rock, Falmouth station.
6381, (2145,) Kaolin, Liggett's station, (Cedar Knob,) Chester Co.
6382, (2146,) Washed Kaolin, do.
6383, (2147,) Kaolin, (crude unwashed,) do.
6384, (2148,) Fine white clay, No. 1 grade, (unwashed,) do. from deep portion of excavation.
6385, (2149,) Syenite, near Brandywine Iron Works.
6386, (2150,) Specular iron ore, farm of M. Epply, near Newburytown, Newbury Twp., York Co.
6387, (2151,) Hornblendic gneiss, 1½ miles N. E. of Sadsburyville, Chester Co.
6388, (2152,) Syenite, near J. E. Barr's house, ¼ mile N. E. of Sadsburyville.
6389, (2153,) Trap, Pleasant Grove school-house.
6390, (2154,) Syenite, do.
6391, (2155,) Dolerite, 1 mile south of Cambridge.
6392, (2156,) Trap, 1 mile north east of Cambridge.
6393, (2157,) Dolerite, western edge of Knauertown.
6394, (2158,) Syenite, 200 yards S. W. of Fairview school-house.
6395, (2159,) Dolerite, ¼ mile west of Upland, Chester Co.

6396, (2160,) Dolerite, western edge of Knauertown.
6397, (2161,) Pegmatite, Elizabeth Robinson's, 1½ miles from Knauertown.
6398, (2162,) Syenite, ¼ mile west of Henry Hall's, West Vincent Twp.
6399, (2163,) Dolerite, 1 mile N. by E. of Charlestown.

6400 to 6486—FREDERICK PRIME, Jr.—1874.

Collections from Lehigh County.

6400, (3,) Gneiss, 2 miles from Alburtis station at Hensingersville, Lehigh Co., from adit of Thomas Iron Company's magnetic mine.
6401, (4,) Limonites, 1 mile from Trexlertown, on road leading to Breingsville, Lehigh Co., from Nathan Whiteley's. (M, p. 52, XXIII.)
6402, (5,) Ochre, 1 mile from Trexlertown, on road leading to Breingsville, Lehigh Co., from Nathan Whiteley's. (M, p. 92, VIII.)
6403, (6,) Limonites, 1 mile west northwest of Alburtis, Lehigh Iron Co., on Bretz farm, Ludwig's old mine, Lehigh Co. (M, p. 50, XI.)
6404, (7,) Magnetite, Temple Iron Company, two miles from Alburtis, near Hensingersville, on Newmeyers' land, Lehigh Co.
6405, (8,) Limonites, Allentown Rolling-Mill Co.'s ore, Christman's farm, 1 mile east from Allentown, Lehigh Co. (M, p. 49, II.)
6406, (9,) Limonites, Coleraine Iron Co., on Christman's farm, 1 mile east of Alburtis, Lehigh Co. (M, p. 49, III.)
6407, (10,) Limonite, Barber's mine, Hensingersville, 1½ miles S. S. W. of Alburtis, Lehigh Co. (M, p. 49, VII.)
6408, (11,) Hard sandy limonite, Mull and Hagenbuch's mine, on Kaiser's farm, north of Lock Ridge, 1 mile west of Alburtis, Lehigh Co. (M, p. 48, I.)

6409, (12,) Limonites, James Lanigan's mine, on Jacob Steininger's farm, ¾ mile S. W. of Fogelsville, Lehigh Co. M, p. 53, XXXIV.)

6410, (13,) Limestone, Thomas Iron Company's quarry, ¾ mile N. N. W. of Alburtis. (M, p. 76, I.)

6411, (14.) Limonites, Marck's mine, mined by Lehigh Iron Co., Lehigh Co. (M, p. 49, V.)

6412, (15,) Limonite, Lauer's mine, mined by the Carbon Iron Co. Lehigh Co. (M, p. 51, XVI.)

6413, (16,) Limonite, Reinhart's mine, worked by the Lehigh Iron Company, Lehigh Co. (M, p. 51, XV.)

6414, (17,) Limonite, Wiand's mine, mined by Temple Iron Co., Lehigh Co. (M, p. 49, IV.)

6415, (18,) Magnetite, Mechling's mines, mined by Lehigh Valley Iron Co., Lehigh Co. (M, p. 90, II.)

6416, (19,) Yellowish-white colored slates, Hensingersville, 1¼ mile from Alburtis, Lehigh Co. (M, p. 92, VII.)

6417, (20,) Limonite, 1½ mile south of Alburtis, Lehigh Co. (M, p. 50, X.)

6418, (21,) Limestone, Thomas Iron Co.'s quarry, ¾ mile N. E. of Alburtis, Lehigh Co. (M, p. 76, II.)

6419, (22,) Limonite, Lichtenwallner's mine, ¾ mile east of Alburtis, Lehigh Co. (M, p. 51, XVII.)

6420, (23,) Carbonate ore, Barber's mine, Hensingersville, 1½ mile from Alburtis, Lehigh Co. (M, p. 89, I.)

6421, (24,) Magnetic ore, (footrock,) P. & R. Iron Company's magnetic iron ore mines, near Red Lion station, C. & F. R. R., Lehigh Co.

6422, (25,) Magnetite, P. & R. Co.'s mine, near Red Lion station, C. & F. R. R., Lehigh Co.

6423, (26,) Limestone, Mrs. Kuhn's quarry, 1½ miles N. E. of Trexlertown, Lehigh Co. (M, p. 76, III.)

6424, (27,) Limestone, Frantz quarry, 1½ miles N. E. of Trexlertown, Lehigh Co. (M, p. 76, IV.)

6425, (28,) Limestone, Henry Heins' quarry No. 1, 1¾ miles southwest of Fogelsville, Lehigh Co.

6426, (29,) Limestone, Henry Heins' quarry No. 2, 2 miles S. W. of Fogelsville, Lehigh Co.

6427, (30,) Limestone, Willoughby Smoyer's quarry, No. 1, ⅝ mile north of Breinigsville, Lehigh Co.

6428, (31,) Limestone, Gackenbach's quarry, 1½ miles N. W. of Trexlertown, Lehigh Co.

6429, (32,) Limestone, Smith's quarry, 1 mile S. W. of Fogelsville, Lehigh Co.

6430, (33,) Slaty limestone, Schantz mill, 1 mile north of Wescoeville, Lehigh Co.

6431, (34,) Limestone, at station 687, Schantz mill, 1 mile north of Wescoeville, Lehigh Co.

6432, (35,) Limestone, Breinig's quarry No. 2, ½ mile north of Breinigsville, Lehigh Co.

6433, (36,) Limestone, Willoughby Smoyer's quarry No. 2, 1 mile north of Breinigsville, Lehigh Co.

6434, (37,) Limestone, Breinig's quarry No. 1, ½ mile north of Breinigsville, Lehigh Co.

6435, (38,) Limestone, Wm. B. Fogel's quarry No. 2, ⅓ mile N. W. of Trexlertown, Lehigh Co.

6436, (39,) Limestone, Wm. B. Fogel's No. 1, ½ mile N. W. of Trexlertown, Lehigh Co.

6437, (40,) Limestone, Wm. Lichtenwallner's quarry, ½ mile north of Trexlertown, Lehigh Co.

6438, (41,) Limestone, quarry near station 979, 1½ miles N. W. of Wescoeville.

6439, (42,) Slaty limestone, Oliver Moser's quarry, 1¼ mile north of Breinigsville, Lehigh Co.

6440, (43,) Sandstone, Henry Schantz mine, at Trexlertown, Lehigh Co.

6441, (44,) Limestone, Dr. Herbst quarry, near station 655, 1⅛ miles N. E. E. of Trexlertown, Lehigh Co.

6442, (45,) Sandstone, Thomas Breinig's mine, leased by the Northampton Iron Co., ⅛ mile north of Breinigsville, Lehigh Co.

6443, (46,) Pyrite, Thomas Breinig's mine, ⅛ mile north of Breinigsville, Lehigh Co.

6444, (47,) Limonite, Breinig's mine, leased by Northampton Iron Co., ⅛ mile north of Breinigsville, Lehigh Co. (M, p. 51, XXII.)

6445, (48,) Wall Rock, Thomas Breinig's mine, leased by Northampton Iron Co., ⅛ mile N. of Breinigsville.

6446, (49,) Pipe ore, Moser's mine, leased by Northampton Iron Co., ⅛ mile north of Breinigsville, Lehigh county. (M, p. 51, XXI.)

6447, (50,) Limonite, Henry Swartz's mine, leased by Crane Iron Company, at Trexlertown, Lehigh Co. (M, p. 52, XXV.)

6448, (51,) Limonite, Wm. B. Fogel's mine, leased by Carbon Iron Company, ½ mile N. W. of Trexlertown, Lehigh Co. (M, p. 52, XXIV.)

6449, (52,) Limonite, Francis Breinig's mine, 1½ miles N. N. W. of Breinigsville, Lehigh Co. (M, p. 51, XX.)

6450, (53,) Limonite, I. and D. Smith's mine, leased by Millerstown Iron Co., 1 mile S. S. W. of Fogelsville, Lehigh Co. (M, p. 53, XXXI.)

6451, (54,) Limonite, Levi Lichtenwallner's mine, leased by Crane Iron Company, Lehigh Co. (M, p. 54, XXXVII.)

6452, (55,) Limonite, Krommlich and Lichtenwallner's mine, leased by Crane Iron Company, Lehigh Co. (M, p. 54, XXXVIII.)

6453, (56,) Blue Ochre, Breinig's mine, 1½ miles N. N. W. of Breinigsville, Lehigh Co.

6454, (57,) Wall Rock of ore, Francis Breinig's mine, 1½ N. N. W. of Breinigsville, Lehigh Co.

6455, (58,) Limonite, Henry Stein's mine, 1 mile W. S. W. of Fogelsville, Lehigh Co., leased by Thomas Iron Co. (M, p. 53, XXXV.)

6456, (59,) Quartz, Henry Stein's mine, 1 mile W. S. W. of Fogelsville, Lehigh county.

6457, (59,) Limonite, do.

6458, (60,) Dried Ochre, (mine 17,) Francis Breinig's mine, 1½ miles N. N. W. of Breinigsville, Lehigh Co. (M, p. 92, IX.)

6459, (61,) Limonite, stripping ore, (mine 97,) Charles Miller's mine, ¼ mile S. S. W. of Fogelsville, Lehigh Co. (M, p. 53, XXXII.)

6460, (62,) Burnt brick, Amandus Held's brick-yard, on Chas. Miller's farm, ¾ mile S. S. W. of Fogelsville.

6461, (63,) Unburnt brick, do.

6462, (64,) Limonite, (mine 4,) Jesse Laro's mine, leased by Crane Iron Company, 1½ miles southwest of Fogelsville, Lehigh Co. (M, p. 54, XXXVI.)

6463, (65,) Limonite, (mine 11,) I. D. Scholl & Co.'s mine, leased by Lehigh Valley Iron Co., 1½ miles S. S. E. of Fogelsville, Lehigh Co. (M, p. 53, XXXIII.)

6464, (66,) Raw ochre, (mine 17,) Francis Brenig's mine, 1½ miles N. N. E. of Brenigsville, Lehigh Co.

6465, (67,) Sandy limonite, (mine 60,) Gackenbach's mine, leased by Crane Iron Co., 2 miles N. E. of Trexlertown, Lehigh Co. (M, p. 52, XXIX.)

6466, (68,) Limonite, Elwyn Bastian's mine, leased by the Lehigh Iron Co., ½ mile west of Wescoeville, Lehigh Co. (M, p. 51, XVIII.)

6467, (69,) Slate, between stations 768, 769, 1½ miles N. N. W. of Fogelsville, Lehigh Co.

6468, (70,) Slate, from quarry, station 729, 1½ miles N. N. W. of Fogelsville, Lehigh Co.

6469, (71,) Slate, from outcrop in road near station 773, 2½ miles N. N. W. of Fogelsville, Lehigh Co.

6470, (72,) Slate, Lehigh Co.

6471, (73,) Slate, station 957, 400 feet east of Snydersville, Lehigh Co.

6472, (74,) Slate, Walbert's station, in R. R. cut, Lehigh Co.

6473, (75,) Slate, from outcrop at station 775, 2½ miles N. N. W. of Fogelsville, Lehigh Co.

6474, (76,) Slate, from outcrop near station 951, ¾ mile west of Walbert's station, C. & F. R. R., Lehigh Co.

6475, (77,) Slate, Lehigh Co.

6476, (78,) Limonite, Francis Guth's mine, leased by Carbon Iron Co., ¾ mile W. N. W. of Wescoeville, Lehigh Co. (M, p. 51, XIX.)

6477, (91,) Limonite, William Koch's mine, leased by Carbon Iron Co., ½ mile east of Trexlertown, Lehigh Co. (M, p. 52, XXVII.)

6478, (92,) Limonite, Reuben Romich's mine, ¾ mile east of New Texas; leased by Allentown Iron Co., Lehigh Co. (M, p. 50, XIII.)

6479, (93,) Limonite, Alwyn Bortz's mine, ½ mile east of Trexlertown, Lehigh Co.; leased by the Roberts Iron Co. (M, p. 52, XXVI.)

6480, (96,) Limonite, Francis Fisher's mine, leased by Colerain Iron Co., 1½ miles N. W. of Wescoeville, Lehigh Co. (M, p. 53, XXX.)

6481, (97,) Limonite, Jonas Grammis' mine, leased by Roberts Iron Co., ½ mile east of Trexlertown, Lehigh Co. (M, p. 52, XXVIII.)

6482, (98,) Limonite, Werner and Reinhart's mine, leased by Allentown Iron Co., Lehigh Co. (M, p. 51, XV.)

6483, (103,) Limonite, Thomas Iron Co.'s mine, at Hensingersville, Lehigh Co. (M, p. 50, IX.)

6484, (104,) Limonite, Maple Grove Mill property, near Hensingersville, Lehigh Co. (M, p. 49, VI.

6485, (105,) Limonite, Shankweiler's lot, adjoining No. 103 at Hensingersville, Lehigh Co. (M, p. 49, VIII.)

6486, (1,) Limonite, Ludwig, Hertzog & Leiss' mine, ¼ mile northwest of Alburtis, Lehigh Co. (M, p. 50, XII.)

6487 to 6513—FREDERICK PRIME, Jr.—1875.

Collections from Lehigh County.

6487, (112,) Argillaceous Limonite, mine at station 2175, ¾ mile east of Emaus, Lehigh Co. (MM, p. 216, 361.)

6488, (113,) Sandy bombshell ore, Kline, Jobst, and Steinheimer's mine, about ¾ mile east of Emaus, Lehigh Co.

6489, (117,) Limonite, Keck and Ritter's mine, 2 miles east of Emaus, Lehigh Co. (MM, p. 216, 356.)

6490, (118,) Limonite, Keck's mine, ½ mile east of Emaus, Lehigh Co. (MM, p. 216, 358.)

6491, (119,) Limonite, Henry Swartz's mine, leased by Thomas Iron Company, Trexlertown, Lehigh Co., (See 6447.)

6492, (120,) Sandy limonite, Conrad Seam's mine, 1½ miles east of Emaus, Lehigh Co. (MM, p. 217, 364.)

6493, (121,) Limonite, Daney's mine, 1 mile south of Emaus. (MM, p. 216, 365.)

6494, (122,) Limonite, Solomon Kehm's mine, 2½ miles N. W. of Emaus, Lehigh Co. (MM, p. 215, 368.)

6495, (125,) Limonite, Charles Glick's mine, 3½ miles N. W. of Emaus, Lehigh Co. (MM, p. 215, 357.)

6496, (126,) Titanic iron ore, said to come from Daney's mine, 1 mile south of Emaus, Lehigh Co. (MM, p. 216, 365.)

6497, (129,) Limestone, Breccia, Mary Kohler's quarry, ¾ mile west of Whitehall station, Lehigh Valley R. R., Lehigh Co.

6498, (131,) Limonite and Goethite, Ritter's mine, Ironton, Lehigh Co.. (MM, p. 213, 61, 62.)

6599, (132,) Limonite, Brown's mine, Ironton, Lehigh Co. (MM, p. 213, 63, 391.)

6500, (135, Limonite, Ruch & Brother's mine, Ruchsville, 3 miles N. W. of Catasauqua, Lehigh Co. (MM, p. 214, 352.)

6501, (136,) Limestone, Ironton R. R. Co.'s quarry, 1 mile S. E. of Ironton, Lehigh Co.

6502, (137,) Limonite, Ironton R. R. Co.'s mine, Ironton, Lehigh Co. (MM, p. 213, 369.)

6503, (138,) Binoxide of manganese, Ironton R. R. Co.'s mine, No. 1, Lehigh Co. (MM, pp. 213, 214, 301.)

6504, (141,) Fossils in slate, Huckleberry Ridge, 3½ miles southwest of Catasauqua, Lehigh Co.

6505, (143,) Limonite, Jonas Biery's mine, about 4 miles N. W. of Allentown, Lehigh Co. (MM, p. 215, 189.)

6506, (144,) Limestone, Ephraim Wenner's, at Jordan's bridge, 4½ miles N. W. of Allentown, Lehigh Co.

6507, (145,) Limonite, Calvin Guth's mine, 4 miles west of Catasauqua, Lehigh Co. (MM, p. 215, 194.)

6508, (147,) Limonite, Hiram Boyer's mine, near Seigersville, 4½ miles west from Catasauqua, Lehigh Co. (MM, p. 214, 196.)

6509, (148,) Limonite, Samuel Seiger's mine, at Seigersville, 4½ miles west from Catasauqua, Lehigh Co. (MM, p. 214, 64.)

6510, (149,) Limonite, James Kline's mine, at Ore field, 5 miles west from Catasauqua, Lehigh county. (MM, pp. 214, 215, 74.)

6511, (150,) Limonite, Benjamin Weaver's mine, 4½ miles west from Catasauqua, near Guth's station, Lehigh Co. (MM, pp. 214, 215, 340.)

6512, (152,) Limestone, Ed. Guth's quarry, Guth's station, 4½ miles west from Catasauqua, Lehigh Co.

6513, (153,) Limestone, Thomas Iron Company's quarry, Guth's station, 4 miles west from Catasauqua, Lehigh Co.

6514 to 6532—FRED'K PRIME, Jr.—1878.

Collections from Lehigh District.

6514, (3,) Hematite, Mrs. John Merkel's mine, at Farmington, 2 miles north of Mertztown, Berks Co. (MM, p. 211, 212, 986.)

6515, (4,) Hematite, Jonathan Zeigler's mine, at station 1994, Farmington, 2 miles north of Mertztown, Berks Co. (MM, p. 211, 212, 988.)

6516, (5,) Brown Hematite, Fleetwood Iron Co.'s mine, 1 mile N. W. of Mertztown, at station 2312, Berks Co. (MM, pp. 210, 211, 983.)

6517, (6,) Brown Hematite, Sam Lewis' mine, at station 2321, 1½ miles N. W. of Mertztown, Berks Co. (MM, pp. 210, 211, 992.)

6518, (7,) Brown Hematite, William Miller's mine, near station 2461, 3 miles north of Topton, Berks Co. (MM, p. 212, 990.)

6519, (44,) Limonite, Charles Heffner's mine, ½ mile south from Lyons, Berks Co., leased by Temple Iron Company. (MM, p. 212, 989.)

6520, (45,) Limonite, David Zeigler's mine, at Farmington, 3 miles north northeast from Mertztown, Berks Co., leased by Temple Iron Company. (MM, pp. 211, 212, 987.)

6521, (46,) Limonite, D. K. Kline's mine, Kline's Corners, 2½ miles north from Mertztown, Berks Co., leased by Temple Iron Company. (MM, pp. 210, 211, 993.)

6522, (148,) Limonite, Udree mine of Clymer Iron Company, 2 miles N. W. from Pricetown, Berks Co. (MM, pp, 212, 213, 991.)

6523, (200,) Brown Hematite, from a depth of 126 feet, deep shaft Wharton mine, Saucon Iron Company, 2 miles east from Hellertown, Northampton Co. (MM, p. 218, 967.)

6524, (201,) Brown hematite, from a depth of 80 feet, Wharton mine, Saucon Iron Company, 2 miles east from Hellertown, Northampton Co. (MM, p. 218, 980.)

6525, (202,) Carbonate of iron, from deep shaft (126 feet) Wharton mine of Saucon Iron Company, 2 miles east from Hellertown, Northampton Co.

6526, (203,) Brown hematite, David Schneider's mine, leased by Saucon Iron Company, 7 miles S. W. from Hellertown, Northampton Co. (MM, p. 217, 968.)

6527, (204,) Brown hematite pipe ore, near Freidensville, 4 miles S. W. from Hellertown on Widow Kurtz's farm, leased by Saucon Iron Company, Lehigh Co. (MM, pp. 217, 218, 967.)

6528, (205,) Brown hematite, near Friedensville, 4 miles S. W. from Hellertown, G. & W. Mory's farm, leased by Saucon Iron Company, Lehigh Co. (MM, pp. 217, 218, 981.)

6529, (206,) Brown hematite, near Freidensville, 4 miles S. W. from Hellertown, Morgan Mory's mine, leased by Saucon Iron Company, Lehigh Co. (MM, pp. 217, 218, 970.)

6530, (26,) Brown Hematite, one mile south from Baurer's, from Daniel H. Smyser's Heirs mine, Berks Co. (MM, p. 212, 985.)

6531, (124,) Limonite, Jobst mine, 2½ miles west of Emaus, Lehigh Co. (MM, p. 216, 366.)

6532, (134,) Limonite, Sheiver's mine, 1½ miles west of Catasauqua, Lehigh Co. (MM, pp. 214, 215, 367.)

6533 to 6664—JOHN H. DEWEES—1874-5-6-7-8-9.

6533, — Limonite, Dr. J. A. Shade's farm, Shade valley, 2 miles S. W. from Shade gap, Huntingdon Co.

6534, — Limonite, Isaac Taylor's property, 3 miles S. W. from Shade gap, Huntingdon Co.

6535, — Fossil ore, Gross' property, S. E. of Adamsburg, Snyder Co. (MM, p. 244.)

6536, — Oriskany sandstone, Dull and Bradley sand mine, McVeytown, Mifflin Co.

6537, — Limonite, surface specimen, Henry Robinson's property, 2½ miles S. W. from Shade gap, Huntingdon Co. (MM, p. 195.)

6538, — Hard fossil ore, William Nankwell's mines, Lost Creek ridge, 5 miles west from Mifflin, Juniata Co. (MM, p. 241.)

6539, — Bird's eye, fossil ore, Peter Weller's property, 2 miles S. E. of Middleburg, Snyder Co.

6540, (1,) Fossil ore, Black Log mountain.

6541, (3,) Fossil ore, Black Log gap.

6542, (5,) Fossil ore, Black Log gap.

6543, (7,) Soapstone, No. 1, north fossil ore vein.

6544, (798,) Marcellus iron ore, from Logan farm ore bank, 5 miles west from Orbisonia, near Hill valley, Huntingdon Co. (M, p. 67.)

6545, (799,) Marcellus iron ore, from Logan farm ore bank, 5 miles west from Orbisonia, near Hill valley, Huntingdon Co. (M, p. 67.)

6546, (800,) Marcellus iron ore, from Logan farm ore bank, 5 miles west from Orbisonia, near Hill valley, Huntingdon Co. (M, p. 67.)

6547, (806,) Silicious iron ore, 5 miles west from Orbisonia, near Hill valley, Huntingdon Co. (M, p. 67.)

6548, (808,) Hematite ore, in lower part of Oriskany sandstone, 5 miles west from Orbisonia, near Hill valley, Huntingdon Co.

6549, (810,) Ore, from Oriskany shale, Chert ore bank, Rockhill Iron Co., south from Orbisonia, Huntingdon Co. (M, p. 66.)

6550, (812,) Fossil ore, 4 miles S. W. from Black Log gap, Huntingdon Co.

6551, (813,) Sulphur ore, from Mount Patrick, 2½ miles south from Orbisonia, Huntingdon Co.

6552, (814,) Hematite ore, on Blacklog mountain, near Orbisonia, Huntingdon Co.

6553, (815,) Hematite ore, 5 miles west from Orbisonia, near Hill valley, Huntingdon Co.

6554, (816,) Hematite ore, in Oriskany sandstone, 5 miles west from Orbisonia, Huntingdon Co.

6555, (827,) Hematite ore, Whitzel ore bank, 5 miles west from Orbisonia, Huntingdon Co. (M, p. 67.)

6556, (829,) Hematite ore, 5 miles west from Orbisonia, Huntingdon Co.

6557, (830,) Hematite, (grape ore,) mountain ore bank, 4 miles S. W. from Orbisonia, Huntingdon Co.

6558, (831,) Hematite ore, 3 miles east from Scoteville, on Three Springs, Huntingdon Co.

6559, (832,) Silicious iron ore, 5 miles west from Orbisonia, Douglass ore bank, Huntingdon Co. (M, p. 67.)

6560, (836,) Hematite iron ore, 5 miles S. W. from Orbisonia, Huntingdon Co.

6561, (839,) Carbonate ore, found in hematite, Stewart's ore bank, 5 miles west from Orbisonia, Huntingdon Co.

6562, (841,) Carbonate ore, Orbisonia slope, Sandy ridge, near Orbisonia, Huntingdon Co.

6563, (842,) Hematite ore, do.

6564, (844,) Hematite ore, Sandy ridge, 2 miles north from Orbisonia, Huntingdon Co.

6565, (845,) Corniferous ore, (hematite,) Chert bank, 2 miles North from Orbisonia, Huntingdon Co.

6566, (846,) Hard fossil ore, North gangway Blacklog gap, Huntingdon Co.

6567, (865,) Fossil ore, from large fossil ore vein, on south side of Blacklog gap, No. 1, gangway, Huntingdon Co. (M, p. 63.)

6568, (866,) Fossil ore, from small fossil ore vein, overlying gangway No. 1, near Orbisonia, Huntingdon Co. (M, p. 63.)

6569, (867,) Fossil ore, north side of Blacklog gap, bottom vein drift No. 1, near Orbisonia, Huntingdon Co. (M, p. 63.)

6570, (869,) Silicious ore, (fossil,) upper fossil vein north side of Blacklog gap, Huntingdon Co.

6571, (870,) Bottom rock of fossil ore, vein north side of Blacklog Gap, Huntingdon Co. (1875.)

6572, (871,) Dividing rock of the two fossil veins at Blacklog Gap, near Orbisonia, Huntingdon Co.

6573, (959,) Fossil ore, from underlying sand veins, Bein's Gap, Slenderdale Ridge, property of Michael Echman, Juniata Co. (MM, p. 239.)

6574, (1000,) Marcellus ore, brown hematite, Shade valley, 6 miles N. E. from Shade Gap, Huntingdon Co. (MM, p. 195.)

6575, (1007,) Hematite, ½ mile S. W. from Fort Littleton, on land of Wm. Dougherty, Esq., Mt. Union, Huntingdon Co.

6576, (956,) "Block ore," 2 miles S. E. from Smith Grove, Snyder Co. (MM, p. 244.)

6577, Fossil ore, Samuel Aughey's property, 2 miles S. W. from Juniata river, in Licking Creek valley, Juniata Co. (MM, p. 239.)

6578, (1021,) Brown hematite ore, (limestone ore,) 1 mile S. E. from Fort Littleton, land of William Trout, Fulton Co. (1876.)

6579, (1022,) Brown hematite ore, (Marcellus ore bed,) N. W. side of Sydney Knob, ¼ mile N. W. of Burnt Cabins, on land of Paul & Bro., Fulton Co.

6580, (1023,) Brown hematite ore, (Marcellus ore bed,) do.

6581, (1024,) do. do. do.

6582, (1025,) Brown hematite ore, from the Lower Clinton shale, ½ mile S. W. of Burnt Cabins, at the S. E. side of Sydney Knob, on land of Wm. Kelley, Fulton Co.

6583, (1026,) Oriskany sandstone, N. W. side of Sydney Knob, ¼ mile N. W. of Burnt Cabins, Fulton Co.

6584, (1027,) Oriskany sandstone, do.

6585, (1028,) Silicious iron ore, from Oriskany sandstone, do.

6586, (1029,) Silicious iron ore, Lower Clinton shale, Mill Hill, Burnt Cabins, Fulton Co.

6587, (1030,) Montebello ore, (silicious,) from S. W. side of Half Falls mountain, between the New Buffalo mountain road and Juniata river, Perry Co. (1877.)

6588, (1031,) Montebello ore, from a point on Half Falls mountain, 4 miles from Susquehanna river, Perry Co.

6589, (1032,) Montebello ore, 2 miles S. W. of Susquehanna river, Perry Co.

6590, (1033,) Fossil limestone, (silicious,) in Chemung shale, N. E. side of Juniata river, near Newport, south of Newport bridge, Perry Co.

6591, (1034,) Fossil limestone, do.

6592, (1035,) Chemung fossil limestone, do.

6593, (1037,) Brown hematite ore, 2 miles S. W. from Newport, on crest of Limestone Ridge, Perry Co.

6594, (1038,) Brown hematite ore, do.

6595, (1039,) do. do.

6596, (1040,) Brown hematite ore, 2 miles S. W. from Newport, on crest of Limestone Ridge, Perry Co.

6597, (1044,)Montebello ore, (silicious,) Polecat valley, in Mahanoy (?) valley, S. E. side of Mahanoy (?) Ridge, 3 miles S. W. of Juniata river, on land of George Peterman, Perry Co.

6598, (1045,) Montebello ore, (soft,) do.

6599, (1046,) Silicious iron ore, on crest of Limestone Ridge, in the synclinal of the Oriskany sandstone, south of Newport, on road leading from Newport and Bailey station road, Perry Co.

6600, (1047,) Silicious iron ore, do.

6601, (1048,) do. do.

6602, (1049,) Brown hematite ore, compact conchoidal fracture, pink ore, 2 miles S. W. from Newport, on crest of Limestone Ridge, Perry Co.

6603, (1050,) Silicious rock, near Mount Patrick, on bank of Penn'a canal, in the gap of Berry mountains, Perry Co.

6604, (1052,) Iron ore, Wildcat valley, on land belonging to Christian Basom, ¼ mile from Juniata river, Perry Co.

6605, (1053,) Gray sandstone, No. 9, Red Catskill, 2 miles N. E. of Juniata river, in Wildcat valley, land of Joseph Mitchell, Perry Co.

6606, (1054,) Lewistown limestone, Mahanoy valley, N. W. side of Dick's Hill, 2 miles N. E. from Montebello Narrows, Thomas Still's quarry, Perry Co.

6607, (1055,) Lewistown limestone, do.

6608, (1059,) Montebello ore, (top bed on Hamilton S. S.,) Polecat valley, in Mahanoy valley, 3 miles S. W. of Juniata river, land of George Peterman, Perry Co.

6609, (1060,) Montebello ore, do. This specimen is the top division of the ore bed.

6610, (1062,) Montebello ore, (top of Hamilton SS.,) 2¼ miles S. W. from Juniata river, Polecat valley, in Mahonoy valley on S. W. side of Mahanoy ridge, on land of Philip Cook, Perry Co.

6611, (1064,) Oriskany sandstone on crest of Limestone ridge, 2 miles S. W. of Newport, Perry Co.

6612, (1065,) Oriskany sandstone, locality same as (1030,) contains coarse white sand and iron, (1878.)

6613, (1066,) Oriskany sandstone, locality same as (1030,) contains white quartz pebbles and iron.

6614, (1066*a*,) Hematite ore, 2 miles from Newport, Perry Co.

6615, (1067,) Oriskany sandstone, locality same as (1030,) contains white quartz pebbles and iron.

6616, (1068,) Oriskany sandstone, locality same as above.

6617, (1069,) Brown hematite ore, (Marcellus ore bed,) N. W. side of Perry furnace ridge, 3 miles S. W. of Perry furnace, on land of Mr. Schuyler, Perry Co.

6618, (1070,) Brown hematite ore, from corniferous shale, Sandy hollow, 2 miles N. W. of Gibson's mill on land of Henry Smith, Perry Co.

6619, (1071,) Hematite ore, in synclinal of the Oriskany sandstone, 1 mile S. W. from Riversmith's farm, Perry Co.

6620, (1071*a*,) Oriskany sandstone, Sandy hollow, N. E. of Gibson rock, and one mile S. W. from Riversmith's farm, Perry Co.

6621, (1072,) Upper Hamilton slate, 1 mile S. E. from Newport, N. W. side of Buffalo hills, Perry Co.

6622, (1073,) Brown hematite ore, (compact,) 2 miles S. E. from New Bloomfield, land of Mr. Macnamara, Perry Co.

6623, (1074,) Brown hematite ore, do.

6624, (1075,) Chemung shale, 4 miles S. W. from New Bloomfield, Perry Co.

6625, (1076,) Brown hematite ore, Marcellus ore bed, near New Bloomfield, on Barnitz farm, Perry Co.

6626, (1077,) Iron sandstone, (Block ore,) Waterford Narrows, 1 mile S. W. from New Waterford, land of William Spanogle, Juniata Co.

6627, (1078,) Brown hematite ore, Marcellus ore bed, 3 miles S. W. from New Waterford, Juniata Co.

6628, (1083,) Oriskany sandstone, (silicious,) near Robinson's store, 2 miles N. W. from Centre Church, Perry Co.

6629, (1085,) Upper Clinton Shale, said to contain copper, 3 miles S. W. from Ickesburg, Perry Co.

6630, (1086,) Perry County sandstone, near Bridgeport and about ⅛ mile N. E. of Snyder's mill, N. E. side of Sherman creek, Perry Co.

6631, (1086*a*,) Perry County sandstone, do.

6632, (1087,) Trap rock, Rye township, crosses Blue Mountain, 8 miles S. W. from Marysville, Perry Co.

6633, (1088,) Brown hematite ore, (silicious,) N. W. side of Iron Ridge, near public road, 4 miles from New Bloomfield, Perry Co.

6634, (1089,) Montebello ore, from S. E. side of Dicks Hill, Perry Co.

6635, (1090,) Montebello ore, on properties of Lewis Lickel and —— Doughtman, on S. E. side of Dicks Hill, 3 miles S. W. from Juniata river, Perry Co.

6636, (1091,) Montebello ore, on land of Mr. Craig, S. E. side of Dicks Hill, ⅛ mile N. E. of New Bloomfield, Perry Co.

6637, (1091*a*,) Montebello ore, do.

6638, (1092,) Brown hematite ore, Marcellus ore bed on land of Mr. Loy, on S. E. side of Loys Hill, 2 miles N. E. of Landisburg, Perry Co.

6639, (1093,) Montebello ore, S. E. side of Dicks Hill, Christian Weaver's property, Perry Co., (1879.)

6640, (1094,) Fossil ore, sand vein, S. E. side of Tuscarora Mountain, ¼ mile north of Millerstown, Perry Co.

6641, (1095,) Fossil ore, do.

6642, (1096,) Brown hematite ore, from Corniferous shale, 3 miles S. W. from New Bloomfield, on N. W. side of Mahanoy Ridge, land of D. J. Long, Perry Co.

6643, (1097,) Carbonate ore, Marcellus ore bed, 3 miles S. W. of New Bloomfield, on the N. W. base of Limestone Ridge, near the site of the old Juniata Furnace, Perry Co.

6644, (1098,) Brown hematite ore, do.

6645, (1099,) Silicious iron ore, ¼ mile N. W. of Millerstown, S. W. side of Tuscarora Mountain, Perry Co.

6646, (1100,) Brown hematite ore, Marcellus ore bed, N. W. side of Mahanoy Ridge, 3 miles S. W. from New Bloomfield, on land of D. J. Long, Perry Co.

6647, (1101,) Brown hematite ore, do.

6648, (1102,) Carbonate ore, locality same as 1130.

6649, (1103,) Silicious shale, 2 miles N. W. from New Buffalo, near Markelsville road, on N. W. side of Buffalo Hills, land of Mr. Miller, Perry Co.

6650, (1105,) Montebello ore, silicious top of Hamilton SS., 1 mile S. W. of Marysville, on land of J. B. Seidel, Perry Co.

6651, (1106,) Montebello ore, do.

6652, (1109,) Montebello ore, Lamb's Gap, 8 miles S. W. of Marysville, Perry Co.

6653, (1111,) Conglomerate rock, from Chemung shale bed, 2 miles S. W. from Newport, Perry Co.

6654, (1112,) Gray sandstone, partially altered, on John Meyers' farm, 6 miles S. W. from Marysville, Fishing Creek valley, Rye township, Perry Co.

6655, (1112*a*,) Oxide of iron and sandstone, do.

6656, (1113,) Fossil ore, near Millersville, on land of W. R. and W. P. Patton, Perry Co.

6657, (1114,) Fossil ore, do.

6658, (1115,) Fossil ore, Donnelly's Gap, ½ mile from Donnelly's Mill P. O., S. W. side of Tuscarora mountain, Raccoon valley, Perry Co. (1879.)

6659, (1116,) "Jack." In sand vein ore bed S. W. side of Tuscarora mountain, Raccoon valley, Perry Co.

6660, (1136,) Montebello ore, 1 mile S. W. from Marysville, Perry Co.
6661, (1137,) Montebello ore, do.
6662, (1133,) Carbonate ore, Perry Co.
6663, (1139,) Hamilton sandstone, 8 miles S. W. from Marysville, Perry Co.
6664, Oriskany sandstone, from Juniata Sand Co.'s mine, 3½ miles from Lewistown, Mifflin Co. (MM, p. 370.)

6665 to 6727—FRANKLIN PLATT—1877-78-79.

6665, Frankstown fossil ore, Frankstown slope mine, Blair Co. (MM, p. 236.)
6666, Fossil ore, Hollidaysburg Gap Ore Co., McKee's Gap, Blair Co. (MM, p. 237.)
6667, Limestone or double fossil ore, (upper layer,) Hollidaysburg, Blair Co. (MM, p. 236.)
6668, Limestone or double fossil ore, (lower layer,) Hollidaysburg, Blair Co. (MM, p. 236.)
6669, Brown hematite ore, Bloomfield mine, near Roaring Spring, Blair county. (MM, p. 205.)
6670, Brown hematite ore, Patterson's mine, 1 mile south from Williamsburg, Blair Co. (MM, p. 201.)
6671, Brown hematite ore, Red ore bank, ⅛ mile from Millerstown, Blair Co. (MM, p. 203.)
6672, Brown hematite ore, Rebecca mines, 4 miles N. E. of Henrietta P. O., Blair Co. (MM, p. 203.)
6673, Brown hematite ore, surface pipe ore, R. Hoovers' mine, 1 mile north from Woodberry, Bedford Co. (MM, p. 206.)
6674, Hematite, from Short mountain mines, 1½ miles N. W. of Franklin Forge, G. D. Isett & Bro., Ætna iron works, Blair Co. (MM, p. 200.)
6675, Bombshell ore, Springfield mines, bank No. 2, Lykens mine, ⅛ mile south from bank No. 1, S. B. Isenberg, Blair Co. (MM, p. 202.)
6676, Hematite ore, Thompson's ore mines, 2 miles west from Fredericksburg, Blair Co. (MM, p. 203.)

6677, Limestone, from Rodman Furnace, quarry No. 1, near Roaring Spring, Blair Co. (MM, p. 306.)
6678, Limestone, from Rodman Furnace, quarry No. 2, do.
6679, Fossiliferous limestone of II, 3 miles north from Woodberry, Bedford Co., near Blair and Bedford Co. line, Blair Co.
6680, Limestone, Manning & Lewis' quarry, Hollidaysburg, Blair Co. (MM, p. 302.)
6681, Limestone used at Springfield Furnace, Blair Co.
6682, Limestone, Baker's quarry, near Altoona, Blair Co. (MM, p. 301.)
6683, Limestone, Sarah Furnace quarry, Blair Co. (MM, p. 302.)
6684, Fireclay, (sample No. 1,) from S. C. Baker, Altoona, Blair Co.
6685, Fireclay, (sample No. 2,) do.
6686, Fireclay, (sample No. 3,) do.
6687, Fireclay, (sample No. 4,) do.
6688, Zinc and lead ore, Tatham's shaft, in Sinking valley, 6 miles S. W. from Birmingham, Blair Co. (MM, p. 280.)
6689, Zinc and lead ore, Fleck's farm, in Sinking valley, 6 do.
6690, Zinc and lead ore, McMullin's farm, 3½ miles S. W. from Birmingham station, Blair Co. (MM, p. 280.)
6691, Zinc and lead ore, from shaft, Mary Isett farm, 4 miles S. S. W. from Birmingham station, Blair Co.
6692, Zinc and lead ore, Dickson's ore farm, Sinking valley, 1 mile S. W. from do. (MM, p. 280.)
6693, Cellular quartz, from Galbraith's farm, Sinking valley, Blair Co. (MM, p. 371.)
6694, Zinc and lead ore, (surface,) on S. Snyder's farm, 3 miles west from Woodberry, Bedford Co. (MM, p. 280.)
6695, Zinc and lead ore, (surface,) on S. Wagner's farm, 3 miles W. N. W. from do.
6696, Brown hematite ore, S. A. Shoemaker, near Carrollton, Cambria Co. (MM, p. 191.)

6697, Brown hematite ore, Jacob Hein's farm, near New Bethlehem, Clarion Co.

6698, Soft fireclay, on Lick run, 1 mile from Farrandsville, Clinton Co. (MM, p. 265.)

6699, Soft fireclay, Lower Bed mine No. 2, 3½ miles from Lock Haven, Clinton Co. (MM, p. 265.)

6700, Hard fireclay, on Lick run, 1 mile from Farrandsville, Clinton Co. (MM, p. 265.)

6701, "Bridge ore," on Jacobs creek, 1½ miles N. E. from Jacobs creek station, on Pittsburgh and Connellsville R. R., Fayette Co. (MM, p. 179.)

6702, Carbonate ore, near old Mt. Vernon furnace, 7 miles north from Connellsville, Fayette Co. (MM, p. 185.)

6703, Iron ore of VIII, Furnace run, near Safe Harbor, 6 miles N. W. of Jersey Shore, Lycoming Co.

6704, Iron ore of XI, (Carbonate?) near Cartersville Furnace, 1 mile north from McIntyre's station, N. C. R. R., Lycoming Co.

6705, Chemung fossil iron ore, 1½ miles N. W. from Perrysville, Lycoming Co.

6706, Iron ore of VIII, (fossil,) Stewart's run, 2 miles N. E. from Jersey Shore, Lycoming Co.

6707, Iron ore in V, South Bald Eagle Mountain, Washing Twp., Lycoming Co.

6708, "Nickel ore," (so reported,) Rauch Gap, at Rauch's Mill's, south end of Nippenose valley, slates of III, Lycoming Co.

6709, Limestone, Ferguson's quarry, 1 mile above mouth of Pine creek, 2 miles west from Jersey Shore, Lycoming Co.

6710, Limestone of VI, Bailey's quarry, 2 miles west from Jersey Shore, Lycoming Co.

6711, Limestone, from Wilson Place, ½ mile north from Jersey Shore, Lycoming Co.

6712, Carbonate iron ore, Liston Bro.'s ore opening, about ¼ mile east from Listonville, Somerset Co. (MM, p. 184)

6713, Carbonate iron ore, G. W. Clark, Hooverville, Somerset Co. (MM, p. 181.)

6714, Limestone, George Zimmerman's quarry, 3½ miles S. E. from Somerset, Somerset Co. (MM, p. 295.)

6715, Limestone, J. W. Beam's quarry, at Jenner's cross roads, Somerset Co. (MM, p. 295.)

6716, Limestone, Peter Berkey's quarry, near Jenner's cross roads, Somerset Co. (MM, p. 291.)

6717, Limestone, J. W. Beam's quarry, at Jenner's cross roads, (No. 3,) Johnstown cement bed, Somerset Co. (MM, p. 295.)

6718, Limestone, Wm. Trevorrow's quarry, near Davidsville, Somerset Co. (MM, p. 296.)

6719, Limestone, Pittsburgh Coal, Coke and Iron Co.'s quarry, ¾ mile north from Ursina, Somerset Co. (MM, p. 291.)

6720, Limestone, Wilt's quarry, near Stoyestown, Somerset Co. (MM, p. 295.)

6721, Limestone, Saylor Hill quarry, ¾ mile west from Meyersdale, Somerset Co. (MM, p. 287.)

6722, Limestone, Keystone Coal and Manufacturing Co.'s quarry, 2½ miles south from Meyersdale, Somerset Co. (MM, p. 286.)

6723, Limestone, 100 feet above Pittsburgh coal, on Saylor's Hill, ¾ mile west from Meyersdale, Somerset Co. (MM, p. 286.)

6724, Limestone, 84 feet above Pittsburgh coal, at J. W. Hayes, 1 mile north from Salisbury, Somerset Co. (MM, p. 287.)

6725, Limestone, 210 feet below Pittsburgh coal, one mile west from Meyersdale, Somerset Co.

6726, Iron ore, near Ganoga lake, (Long pond,) Sullivan Co. (MM, p. 373.)

6727, Limestone, from upper bench Lucke's quarry, near Millview, Sullivan Co. (MM, p. 300.)

6728 to 6773—WM. G. PLATT—1877-79.

6728, Iron ore, (Buhrstone ore,) Pine creek Furnace property, 6 miles N. E. from Kittanning, Armstrong Co. (MM, p. 178.)

6729, Iron ore, (Buhrstone ore,) property of Brown & Mosgrove, Slabtown, north fork of Pine creek, 4 miles S. E. from Templeton, Armstrong Co. (MM, p. 178.)

6730, (3,) Freeport limestone, from property of Kier Bros., at Salina station, on Westmoreland side of river, Armstrong Co. (MM, p. 293.)

6731, (4,) Ferriferous limestone, from property of P. George, 2 miles west from South Bend, Armstrong Co.

6732, (5,) Hard clay on top of Pottsville Conglomerate, ½ mile east from Bell's Mills, Indiana Co. (MM, p. 264.)

6733, (5*c*,) Limestone, 1 mile east from do.

6734, (6,) Clay, property of E. Robinson, opposite (N.) Bolivar, Indiana Co. (MM, p. 264.)

6735, (7,) Clay, opposite (N.) Bolivar, Indiana Co. (MM, p. 264.)

6736, (9,) Limestone, property of Winning and Cuisan, ½ mile N. W. from Kelley's station, West Penn'a R. R., Westmoreland Co. (MM, p. 263.)

6737, (10,) Ferriferous limestone, from property of J. C. Rhea, ½ mile east from Greensville, Armstrong Co.

6738, (12,) Freeport limestone, from property of John Reefer, 3 miles S. W. from Rural village, Armstrong Co.

6739, (13,) Iron ore underlying Freeport limestone, D. R. Griffith's farm, 1½ miles N. N. E. from Homer, Indiana Co. (MM, p. 178.)

6740, (14,) Upper Freeport limestone, do. (MM, p. 292.)

6741, (16,) Freeport limestone, from property of William Marshall, ½ mile east from Dayton, Armstrong Co.

6742, (19,) Limestone, from property of A. Gorman, 2 miles S. W. from Smithport, Indiana Co. (MM, p. 294.)

6743, (20,) Limestone, do. (MM, p. 294.)

6744, (21,) Ferriferous limestone, from property of F. B. & H. Laughlin, at Stewardson Furnace, Armstrong Co.

6745, (22,) Johnstown cement, from property of S. Putney, Putneyville, Armstrong Co.

6746, (23,) Upper Freeport limestone, from property of M. R. Hamilton, ½ mile north from do.

6747, (24,) Limestone, from property of J. Palmer, 3½ miles N. N. W. from Decker's Point, Indiana Co. (1877.) (MM, p. 293.)

6748, (24,) Ferriferous limestone, from property of J. A. Colwell, ½ mile N. W. from Mahoning Furnace, Armstrong Co.

6749, (25,) Buhrstone iron ore, from do.

6750, (28,) Limestone, from property of J. Simpson, ½ mile S. W. from Richmond, Indiana Co. (MM, p. 298.)

6751, (30,) Limestone, from property of S. Brown, ½ mile S. W. from Five Points, Indiana Co. (MM, p. 292.)

6752, (33,) Fireclay, property of M. R. Reynolds, ½ mile north from Kittanning, Armstrong Co.

6753, (34,) Ferriferous limestone, do.

6754, (35,) Ferriferous limestone, property of P. Graff, Buffalo Mills, Armstrong Co.

6755, (38,) Freeport limestone, property of S. Munroe, 2 miles S. W. from Slate Lick, Armstrong Co.

6756, (39,) Ore, overlying Ferriferous limestone, property of Campbell and Barrett, 1 mile N. W. from Centreville, Armstrong Co.

6757, (43,) Freeport limestone, top layer, quarry of Mehaffy and McGill, ¼ mile east from Logansport, Armstrong Co.

6758, (44,) Freeport limestone, 2d layer, quarry of Mehaffy and McGill, &c.

6759, (45,) Freeport limestone, bottom layer, do.

6760, (46,) Freeport iron ore, from property of Brady's Bend Iron Co., 1 mile S. W. from Brady's Bend, Armstrong Co.

6761, (48,) Fireclay, from property of J. McAuley, 3 miles west from New Bethlehem, Clarion Co.

6762, (50,) Freeport limestone, upper layer, property of A. J. Dull & Co., near Manorville, Armstrong Co.

6763, (51,) Freeport limestone, 2d layer, do.

6764, (52,) Freeport limestone, 3d layer, do.

6765, (20,) Buhrstone ore, at Stewardson Furnace, 1 mile east from mouth of Mahoning, property of F. B. and H. Laughlin, Armstrong Co.

6766, Ferriferous limestone, Pine Creek Furnace property, 6 miles N. E. from Kittanning, Armstrong Co.

6767, Carbonate iron ore, 2½ miles N. W. from Kittanning, property of Brown, Orr and Neale, do.

6768, Limestone, Johnstown cement bed, ½ mile S. E. from Cochran's Mills, Armstrong Co.

6769, Pittsburg Limestone, property of A. H. Fulton, West Lebanon, Indiana Co. (MM, p. 289.)

6770, Limestone, from P. Brown's property, 4 miles N. E. from Blairsville, Indiana Co. (MM, p. 293.)

6771, Limestone, G. M. Doty's farm, 5 miles N. E. from Blairsville, Indiana Co. (MM, p. 366.)

6772, Limestone, Robert Smith's property, 2 miles N. N. E. from do. (MM, p. 288.)

6773, Limestone, S. C. Hazlett's quarry, 2 miles south from Jacksonville, Indiana Co. (MM, p. 292.)

6774 to 6799—J. J. STEVENSON—1877.

6774, Blue lump ore, from Oliphant furnace mine, Fayette Co. (MM, p. 162, 163.)

6775, Kidney ore, Lemont furnace ore, 3 miles N. E. from Uniontown, Fayette Co. (MM, p. 186.)

6776, Pittsburgh coal ore, (Lemont ore raw,) 3 miles N. E. from Uniontown, Fayette Co. (MM, p. 164.)

6777, Pittsburgh coal ore, (Lemont ore roasted,) 3 miles N. E. from Uniontown, Fayette Co. (MM, p. 164.)

6778, Carbonate iron ore, from Fayette furnace, property of W. D. Rogers, 2 miles east from Springfield, Fayette Co. (MM, p. 180.)

6779, Iron ore I, Hoggsett, Watt & Co., 6 miles north from Uniontown, Fayette Co. (MM, p. 166.)

6780, Iron ore II, do. (MM, p. 166.)

6781, Iron ore III, do. (MM, p. 166.)

6782, Little Honey Comb ore, (?) Center furnace, Wharton township, Fayette Co. (MM, p. 187.)

6783, Iron ore near New Geneva, 6 miles south from State line on Monongahela river, property of A. Crow, Fayette Co. (MM, p. 169.)

6784, Iron ore, Crow's mill, on George's creek, 3 miles east from New Geneva, Fayette Co. (MM, p. 169.)

6785, Iron ore, on farm of Judge Crow, near New Geneva, Fayette Co. (MM, p. 167.)

6786, Cement rock, from bottom layer of Great Limestone, opposite Cook's mills, 4 miles east from Brownsville, Fayette Co.

6787, Fireclay No. 1, George Potter's bank on Meadow run south of Ohio Pyle Falls, Fayette Co. (MM, p. 260, 261.)

6788, Limestone 1 mile north from Canonsburg, Washington Co. (MM, p. 285.)

6789, Iron ore, 5 miles east from Ligonier, Westmoreland Co.
6790, Iron ore, R. M. C. Graham's property, 3 miles north from Ligonier, near Oak Grove furnace, Westmoreland Co. (MM, p. 169.)
6791, Fireclay, (Bolivar,) Robert Hall's property, near Laughlinstown, 4 miles east from Ligonier, Westmoreland Co. (MM, p. 260.)
6792, Plastic clay, overlying Salina fireclay, from Kier Bro.'s mine, Salina station, W. P. R. R., Westmoreland Co. (MM, p. 259.)
6793, Salina fireclay, from Kier Bro.'s mine, 13′ vein, 1′ from bottom, do. (MM, p. 259.)
6794, Salina fireclay, Kier Bro.'s mine, do. (MM, p. 259.)
6795, Salina fireclay, Kier Bro.'s mine, 3′ from bottom, do. (MM, p. 259.)
6796, Salina fireclay, Kier Bro.'s mine, 13′ vein, 12′ from bottom, do. (MM, p. 259.)
6797, Salina fireclay, Kier Bro.'s mine, do. (MM, p. 259.)
6798, Salina fireclay, Kier Bro.'s mine, do. do.
6799, Salina fireclay, Kier Bro.'s mine, do. do.

6800 to 6820—I. C. WHITE—1877.

6800, Ferriferous limestone, middle stratum, property of Mr. Powers, in Vanporte Borough, Beaver Co. (MM, p. 297.)
6801, Ferriferous limestone, top stratum, from quarries of Mr. Powers, do.
6802, Ferriferous limestone, lower stratum, from Mr. Tygart's quarries, ½ mile below Vanporte, on the Ohio river Beaver Co. (MM, p. 297.)
6803, Fireclay, from mines of Mendenhall and Chamberlin, near New Brighton, Beaver Co. (MM, p. 262.)
6804, Burnt fire brick, from S. Brosius & Co., near Rochester, Beaver Co.
6805, Iron ore, from Denny's mill, Winfield Twp., 1½ miles west from old Winfield furnace, Butler Co. (MM, p. 177.)

6806, Ferriferous limestone ore, 4 miles N. E. from Chewton, Wayne Twp., Lawrence Co. (MM, p. 177.)
6807, Iron ore, near Neshannock Falls, Wilmington Twp., Lawrence Co. (MM, p. 183.)
6808, Hematite ore, "Honey Comb," from mines of Houcks & Granniss, 4 miles N. E. from Chewton, Wayne Twp., Lawrence Co. (MM, p. 190.)
6809, Ferriferous limestone ore, used at Hope furnace, 8 miles east from New Castle, Lawrence Co. (MM, p. 189, 190.)
6810, Iron ore, 2 miles north from do. (MM, p. 183.)
6811, Ferriferous sandstone ore, used at Hope furnace, 8 miles east from do. (MM, p. 189, 190.)
6812, Hematite ore, Houcks and Granniss' mines, 4 miles N. E. from Chewton, Lawrence Co.
6813, Ferriferous limestone ore, from Zeigler's mines, 4 miles N. E. from do. (MM, p. 191.)
6814, Ferriferous limestone ore, from Houcks and Granniss' ore drift, do. (MM, p. 190.)
6815, Ferriferous limestone ore, from Zeigler's mines, do. (MM, p. 191.)
6816, Ferriferous limestone, from Moffit's quarry, 2 miles north from Croton, Lawrence Co. (MM, p. 297.)
6917, Ferriferous limestone, from property of J. K. Shinn & Bros., near Wampum, Lawrence Co. (MM, p. 297.)
6818, Hydraulic cement, manufactured from Ferriferous limestone, by J. K. Shinn & Bros., do.
6819, Ferriferous limestone, from McCord's quarry, 3 miles N. W. from Mount Jackson, Lawrence Co. (MM, p. 297.)
6820, Ferriferous limestone, from quarries of Green, Marquis and Johnson, near New Castle, Lawrence Co. (MM, p. 297.)

6821 to 6829—CHAS. A. ASHBURNER—1875-1878.

6821, Clermont limestone, east side of Little Toby creek. Kylus Corners, Fox Twp., Elk Co. (1878.)

6822, (168,) Hematite, N.W. slope of Jack's mountain, near Saltillo, Huntingdon Co. (1875.) (MM, p. 194.)

6823, (282,) Marcellus iron ore, McCarthy's ore bank, Huntingdon Co. (1875.) (MM, p. 194, 195.)

6824, (292,) Marcellus iron ore, ore No. 2, Fleck's ore bank, Huntingdon Co. (1875.) (MM, p. 194.)

6825, (293,) Marcellus iron ore, ore No. 3, do.

6826, (161,) Water limestone, McCarthy's upper quarry, Huntingdon Co. (1875.) (MM, p. 303.)

6827, (164,) Lewistown limestone, do.

6828, (166*a*,) Lewistown limestone, McCarthy's middle quarry, Huntingdon Co. (MM, p. 303.)

6829, Umbral (No. XI) limestone, ½ mile south from Todd's P. O., Huntingdon Co. (MM, p. 299.)

6830 to 6837—PERSIFOR FRAZER, Jr.—1875-1879.

6830 Hematite, Henry L. Bauman's ore bank, ⅛ mile east from York Road station, Hanover Junction R. R., York Co. (1875.) (MM, p. 220-221.)

6831, (5,) Limonite, from Mickley's farm, 1 mile N. E. from Smith's station, Hanover Junction R. R., York Co. (MM, p. 220.)

6832, Hematites, Bauman's farm, Sprenkle's opening, ⅛ mile east from York Road station, Hanover Junction R. R., York Co.

6833, (1,(?)) Limestone, Mesozoic, (?) on Dillsburg branch of C. V. R. R., about ⅛ of a mile north from depot at Dillsburg, Welty's quarry, York Co.
6834, (2,(?)) Limestone, Mesozoic (?) do.
6835, (3,(?)) do. do. do.
6836, (4,(?)) do. do. do.
6837, (5,(?)) do. do. do.

6838 to 6847—H. M. CHANCE—1879.

6838, (7,) Ferruginous limestone, Upper Kittanning, Johnstown cement bed, Fairmount, Clarion Co.
6839, (14,) Ferriferous limestone, from Long run, Porter Twp., Clarion Co.
6840, (20,) Ferriferous limestone, from Sligo Furnace, Clarion Co.
6841, (24,) Freeport Lower limestone, 3 miles S. E. from Reimersburg, Clarion Co.
6842, (27,) Freeport Upper limestone, from New Athens, Madison Twp., Clarion Co.
6843, (28,) Ferriferous limestone, Hindman's quarry, Clarion Twp., Clarion Co.
6844, (29,) Ferriferous limestone, Carbonate ore, Hindman's quarry, Clarion Twp., Clarion Co.
6845, (31,) Carbonate plate ore, Fox farm, Piney Twp., Clarion Co.
6846, (34,) Freeport Upper limestone, from Reichart quarry, Perry Twp., Clarion Co.
6847, (35,) Ferriferous limestone, Barger quarry, Perry Twp., Clarion Co.

6848 to 7079—HARTSHORNE AND HARTRANFT—1876-1878.

Limestone from Walton's quarry near Bridgeport, Cumberland Co.

Analyses of specimens from No. 6848 to 7079 will be found in Report MM, on page 311 to page 342.

Museum No.	*Field No.*	*Bed No.*	
6848,	(1,)	(1,)	Limestone from near Bridgeport, Cumberland Co.
6849,	(2,)	(1,)	do. do.
6850,	(3,)	(2,)	do. do.
6851,	(4,)	(2,)	do. do.
6852,	(7,)	(3*b*,)	do. do.
6853,	(9,)	(4,)	do. do.
6854,	(10,)	(4,)	do. do.
6855,	(11,)	(5,)	do. do.
6856,	(12,)	(5,)	do. do.
6857,	(13,)	(5,)	do. do.
6858,	(14,)	(5,)	do. do.
6859,	(15,)	(6,)	do. do.
6860,	(16,)	(6,)	do. do.
6861,	(17,)	(7,)	do. do.
6862,	(18,)	(7,)	do. do.
6863,	(19,)	(8,)	do. do.
6864,	(20,)	(8,)	do. do.
6865,	(21,)	(8,)	do. do.
6866,	(22,)	(9,)	do. do.
6867,	(23,)	(9,)	do. do.
6868,	(24,)	(9,)	do. do.
6869,	(25,)	(8,)	do. do.
6870,	(27,)	(10,)	do. do.
6871,	(28,)	(10,)	do. do.
6872,	(29,)	(11,)	do. do.

6873,	(30,)	(11,)	Limestone from near Bridgeport, &c.	
6874,	(31,)	(12,)	do.	do.
6875,	(32,)	(12,)	do.	do.
6876,	(33,)	(13,)	do.	do.
6877,	(34,)	(13,)	do.	do.
6878,	(35,)	(14,)	do.	do.
6879,	(36,)	(14,)	do.	do.
6880,	(37,)	(15,)	do.	do.
6881,	(38,)	(15,)	do.	do.
6882,	(39,)	(16,)	do.	do.
6883,	(40,)	(16,)	do.	do.
6884,	(41,)	(17,)	do.	do.
6885,	(42,)	(17,)	do.	do.
6886,	(43,)	(18,)	do.	do.
6887,	(44,)	(18,)	do.	do.
6888,	(45,)	(19,)	do.	do.
6889,	(46,)	(19,)	do.	do.
6890,	(47,)	(20,)	do.	do.
6891,	(48,)	(20,)	do.	do.
6892,	(49,)	(21,)	do.	do.
6893,	(50,)	(21,)	do.	do.
6894,	(51,)	(22,)	do.	do.
6895,	(52,)	(22,)	do.	do.
6896,	(53,)	(23,)	do.	do.
6897,	(54,)	(23,)	do.	do.
6898,	(55,)	(23,)	do.	do.
6899,	(56,)	(24,)	do.	do.
6900,	(57,)	(24,)	do.	do.
6901,	(58,)	(25,)	do.	do.
6902,	(59,)	(25,)	do.	do.
6903,	(60,)	(26,)	do.	do.
6904,	(61,)	(26,)	do.	do.
6905,	(62,)	(27,)	do.	do.
6906,	(63,)	(27,)	do.	do.
6907,	(64,)	(28,)	do.	do.
6908,	(65,)	(28,)	do.	do.
6909,	(66,)	(29,)	do.	do.
6910,	(67,)	(29,)	do.	do.
6911,	(68,)	(30,)	do.	do.

6912,	(69,)	(30,)	Limestone from near Bridgeport, &c.	
6913,	(70,)	(31,)	do.	do.
6914,	(71,)	(31,)	do.	do.
6915,	(72,)	(32,)	do.	do.
6916,	(73,)	(32,)	do.	do.
6917,	(74,)	(33,)	do.	do.
6918,	(76,)	(34,)	do.	do.
6919,	(77,)	(34,)	do.	do.
6920,	(78,)	(35,)	do.	do.
6921,	(79,)	(35,)	do.	do.
6922,	(80,)	(36,)	do.	do.
6923,	(81,)	(36,)	do.	do.
6924,	(82,)	(37,)	do.	do.
6925,	(83,)	(37,)	do.	do.
6926,	(84,)	(38,)	do.	do.
6927,	(85,)	(38,)	do.	do.
6928,	(86,)	(39,)	do.	do.
6929,	(87,)	(39,)	do.	do.
6930,	(88,)	(40,)	do.	do.
6931,	(89,)	(40,)	do.	do.
6932,	(90,)	(41,)	do.	do.
6933,	(91,)	(41,)	do.	do.
6934,	(92,)	(42,)	do.	do.
6935,	(93,)	(42,)	do.	do.
6936,	(94,)	(43,)	do.	do.
6937,	(95,)	(43,)	do.	do.
6938,	(96,)	(44,)	do.	do.
6939,	(97,)	(44,)	do.	do.
6940,	(98,)	(45,)	do.	do.
6941,	(99,)	(46,)	do.	do.
6942,	(100,)	(46,)	do.	do.
6943,	(101,)	(47,)	do.	do.
6944,	(103,)	(48,)	do.	do.
6945,	(104,)	(48,)	do.	do.
6946,	(105,)	(49,)	do.	do.
6947,	(106,)	(49,)	do.	do.
6948,	(107,)	(50,)	do.	do.
6949,	(108,)	(50,)	do.	do.
6950,	(109,)	(51,)	do.	do.

6951,	(110,)	(51,)	Limestone from near Bridgeport, &c.
6952,	(111,)	(52,)	do. do.
6953,	(112,)	(52,)	do. do.
6954,	(113,)	(53,)	do. do.
6955,	(114,)	(53,)	do. do.
6956,	(115,)	(54,)	do· do.
6957,	(116,)	(54,)	do. do.
6958,	(117,)	(55,)	do. do.
6959,	(118,)	(55,)	do. do.
6960,	(119,)	(56,)	do. do.
6961,	(120,)	(56,)	do. do.
6962,	(121,)	(57,)	do. do.
6963,	(122,)	(57,)	do. do.
6964,	(123,)	(58,)	do. do.
6965,	(124,)	(58,)	do. do.
6966,	(125,)	(59,)	do. do.
6967,	(126,)	(59,)	do. do.
6968,	(127,)	(60,)	do. do.
6969,	(128,)	(60,)	do. do.
6970,	(129,)	(61,)	do. do.
6971,	(130,)	(61,)	do. do.
6972,	(131,)	(62,)	do. do.
6973,	(132,)	(62,)	do. do.
6974,	(133,)	(63,)	do. do.
6975,	(134,)	(63,)	do. do.
6976,	(135,)	(64,)	do. do.
6977,	(136,)	(64,)	do. do.
6978,	(137,)	(65,)	do. do.
6979,	(138,)	(65,)	do. do.
6980,	(139,)	(66,)	do. do.
6981,	(140,)	(66,)	do. do.
6982,	(141,)	(67,)	do. do.
6983,	(142,)	(67,)	do. do.
6984,	(143,)	(68,)	do. do.
6985,	(144,)	(68,)	do. do.
6986,	(145,)	(69,)	do. do.
6987,	(146,)	(69,)	do. do.
6988,	(147,)	(70,)	do. do.
6989,	(148,)	(70,)	do. do.

6990,	(149,)	(71,)	Limestone from near Bridgeport, &c.
6991,	(150,)	(71,)	do. do.
6992,	(151,)	(72,)	do. do.
6993,	(152,)	(72,)	do. do.
6994,	(153,)	(73,)	do. do.
6995,	(154,)	(73,)	do. do.
6996,	(155,)	(74,)	do. do.
6997,	(156,)	(74,)	do. do.
6998,	(157,)	(75,)	do. do.
6999,	(158,)	(75,)	do. do.
7000,	(159,)	(76,)	do. do.
7001,	(160,)	(76,)	do. do.
7002,	(161,)	(77,)	do. do.
7003,	(162,)	(77,)	do. do.
7004,	(163,)	(78,)	do. do.
7005,	(164,)	(78,)	do. do.
7006,	(165,)	(79,)	do. do.
7007,	(166,)	(79,)	do. do.
7008,	(167,)	(80,)	do. do.
7009,	(168,)	(80,)	do. do.
7010,	(169,)	(81,)	do. do.
7011,	(170,)	(81,)	do. do.
7012,	(171,)	(82,)	do. do.
7013,	(172,)	(82,)	do. do.
7014,	(173,)	(83,)	do. do.
7015,	(174,)	(83,)	do. do.
7016,	(175,)	(84,)	do. do.
7017,	(176,)	(84,)	do. do.
7018,	(177,)	(85,)	do. do.
7019,	(178,)	(85,)	do. do.
7020,	(179,)	(86,)	do. do.
7021,	(180,)	(86,)	do. do.
7022,	(181,)	(87,)	do. do.
7023,	(182,)	(87,)	do. do.
7024,	(183,)	(88,)	do. do.
7025,	(184,)	(88,)	do. do.
7026,	(185,)	(89,)	do. do.
7027,	(186,)	(89,)	do. do.
7028,	(187,)	(90,)	do. do.

7029,	(188,)	(90,)	Limestone from near Bridgeport, &c.
7030,	(189,)	(91,)	do. do.
7031,	(190.)	(91,)	do. do.
7032,	(191,)	(92,)	do. do.
7033,	(192,)	(92,)	do. do.
7034,	(193,)	(93,)	do. do.
7035,	(194,)	(93,)	do. do.
7036,	(195,)	(94,)	do. do.
7037,	(196,)	(94,)	do. do.
7038,	(197,)	(95,)	do. do.
7039,	(198,)	(95,)	do. do.
7040,	(199,)	(96,)	do. do.
7041,	(200,)	(96,)	do. do.
7042,	(201,)	(97,)	do. do.
7043,	(202,)	(97,)	do. do.
7044,	(203,)	(98,)	do. do.
7045,	(204,)	(98,)	do. do.
7046,	(205,)	(99,)	do. do.
7047,	(206,)	(99,)	do. do.
7048,	(207,)	(100,)	do. do.
7049,	(208,)	(100,)	do. do.
7050,	(209,)	(101,)	do. do.
7051,	(210,)	(101,)	do. do.
7052,	(211,)	(102,)	do. do.
7053,	(212,)	(102,)	do. do.
7054,	(213,)	(103,)	do. do.
7055,	(214,)	(103,)	do. do.
7056,	(215,)	(104,)	do. do.
7057,	(216,)	(104,)	do. do.
7058,	(217,)	(105,)	do. do.
7059,	(218,)	(105,)	do. do.
7060,	(219,)	(106,)	do. do.
7061,	(220,)	(106,)	do. do.
7062,	(221,)	(107,)	do. do.
7063,	(222,)	(107,)	do. do.
7064,	(223,)	(108,)	do. do.
7065,	(224,)	(108,)	do. do.
7066,	(225,)	(109,)	do. do.
7067,	(226,)	(109,)	do. do.

7068, (227,) (110,) Limestone from near Bridgeport, &c.
7069, (228,) (110,) do. do.
7070, (229,) (111,) do. do.
7071, (230,) (111,) do. do.
7072, (231,) (112,) do. do.
7073, (232,) (112,) do. do.
7074, (233,) (113,) do. do.
7075, (234,) (113,) do. do.
7076, (235,) (114,) do. do.
7077, (236,) (114,) do. do.
7078, (237,) (115,) do. do.
7079, (238,) (115,) do. do.

7080 to 7099—P. FRAZER, Jr.—1879.

7080, (2164,) Syenite, 2 miles southwest of Nantmeal, Chester Co.
7081, (2165,) Dolerite, near George Bailey's, 2 miles west of West Chester.
7082, (2166,) Syenite, ¼ mile south of Cambridge.
7083, (2167,) Dolerite, ¼ mile south of Knauertown.
7084, (2168,) do. ⅛ mile northeast of Cambridge.
7085, (2169,) do. Mrs. Rachel Edwards, 1 mile south of Cambridge.
7086, (2170,) Hornblende rock, ⅛ mile west of Moorestown.
7087, (2171,) Blue dolerite, 1⅛ miles southeast of Honeybrook (or Waynesburg.)
7088, (2172,) "Warwick rock," 1 mile southeast of Knauertown.
7089, (2173,) do. ½ mile south of Wallen P.O.
7090, (2174,) do. ¼ mile south of Cambridge.
7091, (2175,) Syenite, ⅛ mile south of Berwyn station P. R.R.
7092, (2176,) Trap bowlder, Nath. Kemper's, Manheim township, Lancaster Co.
7093, (2177,) Syenite from large bowlder in Berks Co., ½ mile north of Springfield, Chester Co.
7094, (2178,) Dolerite, 1/16 mile west of Springfield.
7095, (2179,) do. large bowlder, ⅛ mile northeast of Springfield.

7096, (2180,) Roofing slates, near M. Charles' and Jacob Hess', Pequea township, Lancaster Co.
7097, (2181,) Decomposed arenaceous gneiss, cross-road between Paradise and Bart townships.
7098, (2182,) Arenaceous gneiss, H. Furguson's north of Georgetown.
7099, (2183,) Gneissoid mica schist with quartz, near J. Haybinger's mill on Octoraro creek.

7100 to 7700—SECTION G.

Schuylkill river from Norristown to Fairmount Water Works, Philadelphia.

Locality 221.

Two quarries of slaty sandstone on the property of George Keiger, in field close to turnpike, in the southern part of the town of Bridgeport, about ¼ mile S.W. from De Kalb street turnpike bridge, crossing the Schuylkill river.

7100, (1,) Milky quartz with hydromica, from most northern end of opening and about 30 paces S. from the turnpike.
7101, (2,) Slaty sandstone, 8′ below No. 1.
7102, (3,) Milky quartz, 18′ do.
7103, (4,) Slaty sandstone, 30′ do. and from second opening.
7104, (5,) Slaty sandstone, 56′ do.
7105, (6,) do. 2 specimens, 84′ do.

Locality 222.

All exposures and quarries of east side of Schuylkill river from Mogeetown to Potts' landing station P. & R. R. R., Plymouth township, Montgomery Co.

7106, (1,) Limestone, (compact,) from N. end of Mogee's quarries and 20′ from south side of road running from Mogee's station to the turnpike.
7107, (2,) Limestone, compact, 55′ below No. 1.
7108, (3,) do. 115′ do.

7109, (4,) Limestone, with hydro-mica and pyrite, 165′ below No. 1.
7110, (5,) Compact white limestone, 200′ do.
7111, (7,) do. 292′ do.
7112, (8,) Slaty limestone, with hydro-mica and pyrite, 332′ do.
7113, (9,) Bluish white compact limestone, 382′ do.
7114, (10,) White compact limestone, 424′ do.
7115, (11,) Hydro-mica schist, with lime and pyrite.
7116, (12,) Dark-gray limestone, 501′ do.
7117, (13,) Bluish compact limestone, 563′ do. from south end of Mogee's quarry.
7118, (14,) Blue slaty limestone, with hydro-mica, from bank on east side of R. R., 656′ do.
7119, (15,) Slaty quartzite, with hydro-mica, colored red by iron oxide, 99′ below No. 14. measuring direct along R. R. track.
7120, (16,) Slaty limestone, with hydro-mica, 60′ below No. 15.
7121, (17,) Slaty limestone, 136′ do.
7122, (18,) Limestone, 220′ do.
7123, (19,) Limestone, with red calcite (?) and hydro-mica, 252′ do.
7124, (20,) Limestone, colored pink by red calcite, 306′ do.
7125, (21,) Limestone and hydro-mica, colored by iron, partially decomposed, 360′ do.
7126, (22,) Limestone, with calcite and hydro-mica, showing the weathering, 430′ do.
7127, (23,) White and gray crystalline limestone, from north end of C. Earnest's quarry, 472 paces below No. 22, measuring down R. R. track.
7128, (24,) White limestone, 40′ below No. 23.
7129, (25,) do. (two specimens,) 96′ do.
7130, (26,) Bluish-gray limestone, 147′ do.
7131, (27,) White limestone, with flakes of hydro-mica, from south end of C. Earnest's quarry, 172′ do.
7132, (28,) White limestone, showing the weathering; close to R. R., between limekilns, 196′ do.

7133, (29,) Bluish limestone, with bands of white limestone, and small flakes of mica, back of house owned by C. Earnest, 258′ below No. 23.
7134, (30,) Bluish limestone, with flakes of mica through it, 282′ do. from side of wagon road leading into lower quarry of C. Earnest.
7135, (31,) Compact bluish limestone, 352′ below No. 23, (2 specimens,) from lower side of above named road.
7136, (32,) Variegated white and bluish limestone, with calcite in concretions, 382′ below No. 23, in bank in woods.
7137, (33,) Bluish limestone, 410′ do.
7138, (34,) do. with calcite, 440′ do.
7139, (35,) do. from quarry, 470′ do.
7140, (36,) White compact limestone, 500′ do.
7141, (37,) Hydro-mica slate, with lime and pyrite, colored reddish by decomposed pyrite, from bank exposure, 586′ do.
7142, (38,) Whiteish compact limestone, with small flakes of mica, 652′ do., close to edge of R. R.
7143, (39,) Bluish compact limestone, with hydro-mica, edge of R. R., 660′ do.
7144, (40,) Light-blue compact limestone, with hydro-mica, edge of R. R., 720′ do.
7145, (41,) Yellowish-white compact limestone and hydro-mica, edge of R. R., 756′ do.
7146, (42,) White limestone, with hydro-mica, 801′ do.
7147, (43,) do. showing weathering, 855′ do.
7148, (44,) Bluish-white limestone, showing the weathering, 906′ do.
7149, (45,) Shaly limestone and hydro-mica, from bank exposures, 950′ do.
7150, (46,) Slaty limestone, with hydro-mica, 1013′ do.
7151, (47,) Compact bluish-white limestone, 1058′ do.
7152, (48,) Slaty limestone, with hydro-mica, 1096′ do.
7153, (49,) White limestone and hydro-mica schist interstratified, from bank exposure, 1132′ do.
7154, (50,) Bluish slaty limestone with hydro-mica, 1167′ do.

7155, (51,) Bluish slaty limestone with crystals of pyrite and mamil lary calcite, 1200′ below No. 23.
7156, (52,) Slaty bluish limestone with hydro-mica, showing the weathered surface, 1248′ do.
7157, (53,) Compact bluish limestone, 1288′ do.
7158, (54,) Slaty bluish limestone with hydro-mica, 1333′ do.
7159, (55,) Limestone in hydro-mica schist, 1385′ do.
7160, (56,) Slaty bluish limestone with hydro-mica, 1415′ do.
7161, (57,) White and bluish limestone with weathered surface, 1455′ do.
7162, (58,) Bluish limestone, 1482′ do.
7163, (59,) White do. 1520′ do.
7164, (60,) Bluish white, do. 1581′ do.
7165, (61,) Slaty white and salmon colored limestone with hydro-mica, 1604′ do.
7166, (62,) Slaty bluish limestone with hydro-mica, from quarry of Earnest and Dr. Freedley, 1676′ do.
7167, (63,) Slaty bluish limestone with hydro-mica and pyrite crystals, same quarry, 1703′. do.
7168, (64,) Light bluish slaty limestone with hydro-mica from same quarry, 1755′ do.
7169, (65,) Bluish gray slaty limestone with hydro-mica, from south end of above quarry, 1816′ do.

Locality 223.

Takes in all exposures and quarries from Potts' Landing station G. & N. branch P. & R. R. R. to Conshohocken on east side of the Schuylkill river.

7170, (1,) Bluish white crystalline limestone, from exposure between P. & R. R. R. and the Schuylkill river and 170′ below the S. W. corner of Dr. Freedley's house, measuring down R. R. track.
7171, (2,) Compact white limestone, 72′ below No. 1.
7172, (3,) Compact bluish do. 387′ below No. 2, measuring direct down R. R. track.
7173, (4,) Bluish and white crystalline limestone E. side of R. R., 18′ below No. 3.
7174, (5,) Bluish limestone with white bands from bank on E. side R. R., 36′ do.

7175, (6,) Bluish limestone with hydro-mica, from same bank, 96′ below No. 3.
7176, (7,) do. 162′ do.
7177, (8,) do. with hydro-mica, 106′ below No. 7, measuring down R. R. track.
7178, (9,) Bluish white fine-grained crystalline limestone, 54′ below No. 8.
7179, (10,) do. showing weathered surface in bank on E. side of R. R., 108′ do.

(Specimens from 1–10 inclusive are on property of Dr. S. Freedley.)

7180, (11,) Blue and white limestone, 160′ do. on property of Mr. Beatty, E. side of R. R.
7181, (12,) Compact white limestone, 180′ below No. 11, measuring down R. R. from No. 11 to strike of No. 12 from N. end of Beatty's quarry.
7182, (13,) Crystalline limestone with hydro-mica and pyrite 75′ below No. 12, from S. end of Beatty's quarry.
7183, (14,) do. 300′ below No. 13, measuring down R. R. bank exposure, on east side of track.
7184, (15,) Limestone with calcite throughout it, in veins, 46′ below No. 14.
7185, (16,) Mixed limestone and crystalline limestone, from quarry on east side of R. R., 91′ do.
7186, (17,) Compact bluish limestone with cross streaks of white limestone and hydro-mica (2 specimens,) 118′ do.
7187, (18,) Crystalline limestone (marble,) with hydro-mica and pyrite, 206′ do. from south end of above named quarry.
7188, (19,) Interstratified marble and hydro-mica schist, (Bastard marble,) with pyrite bank exposure, 260′ do.
7189, (20,) do. 314′ do.
7190, (21,) do. 404′ do.
7191, (22,) do. 494′ do.
7192, (23,) do. with pyrite, colored redish brown in places, from the decomposed pyrite, 590′ do. in R. R. cut,

7193, (24,) Marble with a little hydro-mica in R. R. cut, 680′ below No. 14.
7194, (25,) Bastard marble with pyrite crystals, in R. R. cut, 735′ do.
7195, (26,) Bastard marble, 823′ do.
7196, (27,) do. 913′ do.
7197, (28,) do. 968′ do.
7198, (29,) do. 1038′ do.
7199, (30,) do. 1098′ do.
7200, (31,) do. 126′ do. below No. 30, measuring down R. R. from bank, E. side R. R.
7201, (32,) do. 70′ below No. 31.
7202, (33,) do. W. side of track, 190′ do.
7203, (34,) do. E. do. 270′ do.
7204, (35,) do. do. 535′ do.
7205, (36.) do. bank exposure, 621′ do.
7206, (37,) do. do. 757′ do.
7207, (38,) do. do. 870′ do.
7208, (39,) White and bluish marble with hydro-mica, from bank, 960′ do.
7209, (40,) Bastard marble, 1103′ do.
7210, (41,) do. 1146′ do. close to Conshohocken Water Works.
7211, (42,) Bluish and white marble, with hydro-mica, 1696′ below spec. No. 31, from Plymouth R. R. cut.

Locality —.

Exposures at river's edge and back from river in West Conshocken, Upper Merion township, Montgomery Co.

7212, (1,) Hydro-mica schist from exposure at water's edge on west side of the Schuylkill river, 150–200 yards below the dam at Conshocken Water Works.
7213, (2,) Hydro-mica schist, slightly honeycombed by decomposition, 100′ below No. 1, at edge of river, seen at low water.
7214, (3,) Hydro-mica schist and quartzite at water's edge, 220′ do.

7215, (4,) Limestone with hydro-mica at water's edge, 540′ below No. 1.
7216, (5,) Trap at water's edge, 853′ do.
7217, (6,) do. 36′ below No. 5, measuring direct across trap dyke.
7218, (7,) Slaty limestone, 8′ below No. 6, at river's edge.
7219, (8,) Hydro-mica schist, 129′ do. at river's edge.
7220, (9,) do. exposure on Front street, 214′ do.
7221, (10,) do. do. and at side of house occupied by D. Eagan, 289′ do.
7222, (11,) Blue limestone, 775′ do. on the property of Mr. Davis, 150 yards southwest from Front street, West Conshohocken.
7223, (12,) Blue compact limestone on same property.
7224, (13,) Porphyritic mica schist, from quarry owned by Davis, 1333′ do.
7225, (14,) White marble, from the same quarry, 1357′ do.
7226, (15,) White and blue marble with hydro-mica and pyrite, 1428′ do.

Locality 227.

Exposures of Edge Hill rock, on Spring Mill road, about 100 yards north of "Wm. Penn" post office, White Marsh township, Montgomery Co.
7227, (1,) Edge Hill sandstone, from most northerly end of above named exposure.
7228, (2,) do. from south end of exposure, 200′ below No. 1.

Locality 227a.

Exposures in a stream on the property of John Waters, on west side of Schuylkill river and at the east end of West Conshohocken.
7229, (1,) Porphyritic mica schist, from above named stream, back of house occupied by Levi W. Whiteman.
7230, (2,) Garnetiferous hydro-mica schist in the same stream, 3′ below No. 1.
7231, (3,) do. 109′ do.

Locality 226.

Commences on the property of John Y. Crawford on the south side of the Schuylkill, east from West Conshohocken, Lower Merion township, and extends as far as Young's road.

7232, (1,) Syenitic mica schist, at edge of road which runs along the hillside above the P. & R. R. R., and on property of J. Y. Crawford.
7233, (2,) do. 43′ below No. 1.
7234, (3,) White quartzose schist with crystals of tourmaline, 83′ do. at edge of P. & R. R. R.
7235, (4,) do. 124′ do.
7236, (5,) Hornblende schist, 181′ do.
7237, (6,) Porphyritic gneiss, 221′ do.
7238, (7,) Porpheritic, hornblendic gneiss, 261′ do.
7239, (8,) Quartz porphyry schist, 331′ do.
7240, (9,) Hornblende schist, 668′ do.
7241, (10,) do. gneiss, 980′ do. on W. side of R. R. at curve.
7242, (11,) Gneiss, 1041′ do.
7243, (12,) do. 1391′ do. and on property of Godfrey Young, on hillside above his house.

Locality 228.

Extends from old Wm. Penn Furnace, just below Spring Mill station, G. & N. branch of P. & R. R. R., to a point opposite small island in the river, all on the east side of the river, Whitemarsh Twp., Montgomery Co.

7244, (1,) Gneiss, from exposure high up on the hill, just south of Spring Mill station, (2 specimens.)
7245, (2,) Porphyritic gneiss, 300′ below No. 1, at roadside skirting the hill.
7246, (3,) do. 400′ do.
7247, (4,) Hornblende schist, on same roadside, 476′ do.
7248, (5,) Gneiss, on same road, 576′ do.
7249, (6,) Dark colored gneiss, 876′ do., exposure in woods, just above the road.

7250, (7,) Gneiss, at edge of R. R., 966′ below No. 1, (two specimens.)
7251, (8,) Gneiss, with pink feldspar, at edge of R. R., 1106′ do.
7252, (9,) Hornblendic gneiss, (two specimens,) at edge of R. R., 1151′ do.
7253, (10,) Gneiss, slightly porphyritic, at edge of R. R., 1197′ do.
7254, (11,) Gneiss, at edge of R. R., 1237′ do.
7255, (12,) Porphyritic gneiss, (two specimens,) at edge of R. R., 1277′ do.
7256, (13,) Gneiss, 1285′ do., from bank exposure at E. edge of R. R.
7257, (14,) Gneiss, 1331′ do.
7258, (15,) Hornblendic gneiss, 1354′ do., from bank exposure at E. edge of R. R.
7259, (16,) Granitic gneiss, (two specimens,) at E. edge of R. R. 1369′ do.
7260, 17,) do. dark colored, at E. edge of R. R., 1449′ do.
7261, (18,) Coarse granitic gneiss, with much feldspar, (two specimens,) at E. edge of R. R., 1505′ do.
7262, (19,) Granitic gneiss, 1545′ do.
7263, (20,) Horblendic gneiss, 1587′ do.
7264, (21,) do. with pink feldspar, 1625′ do.
7265, (22,) Coarse-grained hornblendic gneiss, (two specimens,) at edge of R. R., 1675′ do.
7266, (23,) Coarse-grained hornblendic gneiss, with pink feldspar, (two specimens,) 1715′ do.
7267, (24,) Finer-grained do. (two specimens,) 1755′ do.
7268, (25,) Biotite mica gneiss, 1805′ do.
7269, (26,) Hornblendic? gneiss, with pink feldspar, showing weathered surface, 295′ below No. 25, at edge of R. R., measuring direct along line of R. R.

Locality 204.

Extensive exposures in road leading from Lafayette Station to Barren Hill, beginning about 400 yards east from Lafayette Station, extending to the station.

7270, (1,) Close-grained garnetiferous schist; from road opposite upper end of pond owned by William Hamilton.

7271, (2,) Coarse-grained schist, at same roadside, 20′ below No. 1.

7272, (3,) Coarse-grained garnetiferous schist, at same roadside, 76′ do.

7273, (4,) Coarse-grained schist, with the hydro-mica in large wavy flakes, at same roadside, 392′ do.

7274, (5,) Fine-grained slaty schist, do. 423′ do.

7275, (6,) do. do. 488′ do.

7276, (7,) do. on east side of stream, on property of George W. Hamilton, 36 paces below No. 6.

7277, (7,) do. do.

Locality 229.

Extends from Lafayette Station to Port Royal road, or Ship's lane, on east side of the Schuylkill river, in Springfield Twp., Montgomery Co., and city of Philadelphia.

7278, (1,) Fine-grained slaty schist, from east end of exposure, behind Hamilton's paper-mill, just below Lafayette station.

7279, (2,) Coarser-grained schist, discolored by decomposition, 60′ below No. 1.

7280, (2,) do. do

7281, (3,) Serpentine and staurolite; exposure in field of Mr. Prince, 243′ below No. 2, measuring direct across strike.

7282, (4,) do. 70′ below No. 3, measuring direct.

7283, (5,) do. 125′ below No. 4, on same property in stream.

7284, (6,) do. 85′ below No. 5, measuring direct, exposure in woods.

7285, (7,) Serpentine and staurolite; exposure in field of Mr. Prince, 45′ below No. 6, measuring direct, back of house occupied by Thos. Lander.
7286, (8,) Soapstone, with magnetite, in woods, 55′ below No. 7, measuring direct.
7287, (9,) do. in woods, 85′ below No. 8, measuring direct.
7288, (10,) Soapstone, with magnetite and chlorite, in woods, 45′ below No. 9.
7289, (11,) Soapstone, with magnetite and siderite and limonite, from decomposed magnetite, in woods, 91′ do.
7290, (12,) Soapstone, with magnetite, in woods, 150′ do.
7291, (13,) do. with calcite, at edge of R. R., 191′ do.
7292, (14,) Soapstone, with magnetite, from north end of Prince's quarry, 239′ do.
7293, (15,) Soapstone, with a little calcite, from Prince's quarry, 285′ do.
7294, (16,) Garnetiferous schist, S. end of Prince's quarry, 355′ do.
7295, (17,) Close-grained garnetiferous schist, 395′ do. from the edge of R. R.
7296, (18,) Coarse garnetiferous schist, from edge of R. R., 451′ do.
7297, (19,) do. from edge of R. R., 491′ do.
7298, (19,) do. do. 491′ do.
7299, (20,) Medium fine garnetiferous schist, from edge of R. R., 496′ do.
7300, (21,) Coarse gray schist, from edge of R.R., 535′ do.
7301, (22,) Coarse garnetiferous talcose schist, from edge of R. R., 591′ do.
7302, (23,) do. from edge of R. R., 646′ do.
7303, (24,) do. from edge of R. R., 717′ do.
7304, (25,) do. from edge of R. R., 780′ do.
7305, (26,) Garnetiferous schist and hornblende schist, interstratified, from edge of R. R., 850′ do.
7306, (27,) Coarse garnetiferous schist, from edge of R. R., 890′ do.

7307, (28,) Dark hornblende schist, 160′ below No. 27, measuring direct.
7308, (29,) Coarse schists, (two specimens,) at edge of R. R., 352′ do.
7309, (30,) Coarse chloritic schist, from edge of R. R., 46′ below No. 29.
7310, (31,) Fine gray schist, from edge of R. R., 132′ do.
7311, (32,) Coarse gray schist, from edge of R. R., 192′ do.
7312, (33,) do. 209′ do. in small garden at E. edge of R. R. track.
7313, (34,) Coarse gray schist, (two specimens,) from edge of R. R., 178′ below No. 33, measuring direct along R. R.
7314, (35,) Close-grained garnetiferous schist, from edge of R. R., 44′ below No. 34.
7315, (36,) Coarse hydro-mica schist, 79′ do.
7316, (37,) Coarse garnetiferous schist 170′ do., measuring direct along R. R.
7317, (38,) do. at edge of R. R., 56′ below No. 37.
7318, (39,) do. do. 92′ do.
7319, (40,) do. do. 132′ do.
7320, (41,) do. do. 162′ do.
7321, (42,) do. do. 209′ do.
7322, (43,) do. do. 107′ below No. 42, measuring direct along R. R.
7323, (44,) Fine compact garnetiferous schist, at edge of R. R., 25′ below No. 43.
7324, (45,) Coarse garnetiferous schist, 100 paces below No. 44, pacing down R. R.
7325, (46,) do. on E. side of R. R., 30′ below No. 45.
7326, (47,) do. (two specimens,) on E. side of R. R., 100 paces below No. 46.
7327, (48,) do. at edge of R. R., 86′ below No. 47, measuring direct.
7328, (49,) do. (two specimens,) E. side of R. R., 25′ below No. 48.
7329, (50,) Hornblende schist, E. side of R. R., 41′ do.
7330, (51,) Fine-grained garnetiferous schist, with hornblende, (2 specimens,) E. side of R. R., 57′ do.

7331, (52,) Coarse garnetiferous schist, just above Ship's Lane, 92′ below No. 48.

Locality 238.

Commences at Ship's Lane and extends to Springfield station, on east side of the Schuylkill river, city of Philadelphia.

7332, (1,) Compact garnetiferous schist, close to towpath, at edge of river, 77′ below line of strike of No. 7331.

7333, (2,) Coarse garnetiferous schist, at edge of towpath, 236′ below No. 1.

7334, (3,) Coarse garnetiferous schist, at edge of towpath, 346′ do.

7335, (4,) do. from R. R. cut, 374′ do.

7336, (5,) Garnetiferous hornblende schist, from R. R. cut, 421′ do.

7337, (6,) Hornblende schist, 498′ do. from R. R. cut.

7338, (7,) Brown garnetiferous schist, from R. R. cut, 539′ do.

7339, (8,) Dark hornblende schist, 611′ do. from R. R. cut.

7340, (9,) Coarse garnetiferous schist, from R. R. cut, 677′ do.

7341, (10,) Hydro-mica schist, 777′ do. from R. R. cut.

7342, (11,) Dark hornblende schist, 855′ do. from R. R. cut.

7343, (12,) Fine and coarse-grained schist, 911′ do.

7344, (13,) Coarse brown schist, 86′ below No. 12, measuring along R. R. track.

7345, (14*a*,) Compact micaceous quartzite, 146′ do., measuring along R. R. (14*b*,) coarse garnetiferous schist.

7346, (15,) Medium coarse mica schist, 275′ do., measuring along R. R.

7347, (16,) do. slaty, 334′ do., measuring along R. R.

7348, (17,) Coarse (chloritic) schist, on E. side of R. R., 47′ below No. 16.

7349, (18,) Medium fine schist, with biotite, from E. side of R. R., 112′ below No. 16.

7350, (19,) Fine and coarse garnetiferous schist, with biotite, 172′ do. from east side of R. R., in small stream, just above Shawmont station.

7351, (20,) Gneiss, fine-grained and coarse, west side of R. R., close to towpath, 215′ do.

7352, (21,) Schist, 302′ do., between R. R. and river close to towpath and just behind Shawmont station.

7353, (22,) Compact grey schist, 142′ below No. 21, measuring down R. R., from E. side of R. R.

7354, (23,) Coarse-grained white gneissoid schist, 230′ do., measuring direct along R. R., and from E. side of R. R.

7355, (24,) Gray schist, 458′ do., measuring down R. R., and from E. side of R. R.

7356, (25,) Fine gray schist, 620′ do., measuring down R. R., and on W. side of R. R. near towpath.

7357, (26,) Gneissoid schist, 48′ below No. 25, at edge of towpath and close to ice house.

7358, (27,) Coarse mica schist, 200′ below No. 26, measuring along R. R., and on E. side of track.

7359, (28,) Coarse garnetiferous schist, 118′ below No. 27, measuring along R. R. and close to towpath, on W. side of R. R.

7360, (29,) Coarse grey mica schist, 168′ do., measuring along R. R., and from wagon road running along E. side of R. R.

7361, (30,) Coarse brown garnetiferous schist, 63′ below No. 29 from same road.

7362, (31,) Compact schist, with quartzite 110′ below No. 30, measuring down R. R. from exposures just at W. side of R. R.

7363, (32,) Compact grey mica schist, 73′ below No. 31, measuring direct along R. R. from Jones' quarry on E. side of R. R.

7364, (33,) do. from same quarry, 22′ below No. 32.

7365, (34,) Compact grey mica schist, from same quarry, 54′ below No. 32.
7366, (35,) Coarse mica schist, from R. R. cut, 149′ do.
7367, (36,) Garnetiferous schist, (2 specimens,) from R. R. cut, 178′ do.
7368, (37,) Grey mica schist, from R. R. cut, 213′ do.
7369, (38,) Compact grey mica schist, from R. R. cut, 254′ do.
7370, (39,) Coarse garnetiferous schist, from R. R. cut, 307′ do.
7371, (40,) Coarse schist, from R. R. cut, 339′ do.
7372, (41,) Coarse grey schist, from R. R. cut, 352′ do.
7373, (42,) do. from R. R. cut, 407′ do.
7374, (42,) do. do. do.
7375, (43,) Grey compact mica schist, from R. R. cut, 437′ do.
7376, (44,) Mica schist, from R. R. cut, 492′ do.
7377, (45,) Coarse schist, 52 paces below No. 44, pacing down R. R.
7378, (46,) do. on E. side of R. R., 45′ below No. 45.
7379, (47,) do. on E. side of R. R., 93′ do.
7380, (48,) Compact and coarse garnetiferous schist, on E. side of R. R., 140′ do.
7381, (49,) Garnetiferous schist, colored reddish brown by decomposition, 67′ below No. 48, measuring along R. R. track, and from E. side of R. R.
7382, (50,) Coarse schist, 165′ do., measuring along R. R. track.
7383, (51,) Coarse garnetiferous schist, colored reddish brown and yellow, from E. side of R. R., 58′ below No. 50.
7384, (52,) Dark hornblende schist, from E. side of R. R., 76′ do.
7385, (53,) Coarse garnetiferous schist, from E. side of R. R., 114′ do.
7386, (54,) Coarse mica schist, from E. side of R. R., 167′ do.
7387, (55,) do., from E. side of R. R., 209′ do.
7388, (56,) Slaty bornblende schist, from E. side of R. R., 242′ do.
7389, (57,) Hornblende schist, from E. side of R. R., 272′ do.

7390, (58,)Coarse garnetiferous schist, from E. side of R. R., 282′ below No. 50.
7391, (59,) Slaty hornblende schist, from exposure in wagon road, which crosses under R. R., and on E. side of R. R., 332′ do.
7392, (60,) Micaceous quartzite, from bank on E. side of R. R., 397′ do.
7393, (61,) White quartz, from bank on E. side of R. R., 412′ do.
7394, (62,) Coarse schist, from E. side of R. R., 444′ do.
7395, (63,) Interstratified coarse and fine schist, from bank on E. side of R. R., 100′ below spec. No. 62, measuring down R. R. track.
7396, (64,) do. from bank on E. side of R. R., 24′ below No. 63.
7397, (65,) do., from bank on E. side of R. R., 56′ do.
7398, (66,) Coarse mica schist, from bank on E. side of R. R., 121′ do.
7399, (67,) do. from E. side of R. R., 161′ do.
7400, (68,) do. from E. side of R. R., 189′ do.
7401, (69,) Coarse mica schist, from E. side of R. R., 237′ do.
7402, (70,) do. do. 297′ do.
7403, (71,) do. do. 342′ do.
7404, (72,) do. do. 377′ do.
7405, (73,) do. do. 425′ do.
7406, (74,) Coarse mica schist, discolored brown by decomposition, from E. side of R. R., 502′ do.
7407, (75,) Fine gray mica schist, from E. side of R. R., 562′ do.
7408, (76,) Light-colored mica schist, from E. side of R. R., 87′ below No. 75, measuring direct along R. R.
7409, (77,) Dark slaty hornblende schist, from E. side of R. R. track, 164′ do., measuring along R. R. track.
7410, (78,) Slaty mica schist, from E. side of R. R., 18′ below No. 77.
7411, (79,) Slaty hornblende schist, from W. side of R. R., 150′ below No. 78, measured down R. R. track.

7412, (80,) Slaty mica schist, 20′ below No. 79, about 40 paces above Springfield station.

Locality 232.

Commences below the south end of Flat Rock tunnel, Phila. and Reading railroad, and extends to public road crossing under R. R., just south of West Manayunk station, all on west side of Schuylkill river, Lower Merion Twp., Montgomery Co.

7413, (1,) Close-grained garnetiferous mica schist, from edge of river, about 50 yards below line of strike of 7412.

7414, (2,) Mica schist, from edge of river, 34′ below No. 1.

7415, (3,) Coarse gneissoid schist, do. 84′ do.

7416, (4,) Gray mica schist, do. 116′ do.

7417, (5,) do. do. 173′ do.

7418, (6,) do. do. 221′ do.

7419, (7,) Coarse-grained mica schist, 246′ do. from wagon road that crosses under R. R. and on W. side of Phila. and Reading R. R.,

7420, (8,) Compact garnetiferous gneiss, 100 yards south of No. 7, from exposure in field, property of Mr. Leedom, on west side of R. R.

7421, (9,) Compact gray mica schist, do. 50′ below No. 8.

7422, (10,) Coarse gray mica schist, from same property, 50 paces below No. 9.

7423, (11,) Coarse gray gneissoid mica schist, do. 30′ below No. 10.

7424, (12,) More compact do. do. 66 paces below No. 11.

7425, (13,) do. 64′ below No. 12, by direct measurement.

7426, (14,) Hornblendic mica schist, close to line fence, 100 paces below No. 13.

7427, (15,) Coarse gneissoid schist, from bank on W. side of R. R., 20′ below No. 14.

7428, (16,) Fine garnetiferous schist, from bank on W. side of R. R., 56′ do.

7429, (17,) Gray schist, from bank on W. side of R. R., 132′ below No. 16, by direct measurement.

7430, (18,) Coarse and fine-grained schist, with garnets, from bank on W. side of R. R., 232′ below No. 16.
7431, (19,) Coarse gray schist, in woods on W. side of R. R., 155′ below No. 18.
7432, (20,) do. from R. R. cut, 57′ below No. 19.
7433, (21,) Coarse gray gneissoid schist, do. 109′ do.
7434, (22,) do. do. 176′ do.
7435, (23,) Coarse brown garnetiferous schist, from R. R. cut, 241′ do.
7436, (24,) Gray schist, from R. R. cut, 257′ do.
7437, (25,) Coarse gray schist, close to west edge of R. R., 307′ do.
7438, (26,) Compact gray gneissoid schist, with garnets, close to W. edge of R. R., 351′ do.
7439, (27,) Fine and coarse-grained gneissoid schist, with garnets, (two specimens,) close to W. edge of R. R., 369′ do.
7440, (28,) Gray schist, from small exposure in bank on W. side of track, 75 paces below No. 27, pacing along line of R. R.
7441, (29,) do. from exposure close to W. side of track, 90 paces below No. 28.
7442, (30,) Dark hornblende schist, from W. side of R. R., 20′ below No. 29.
7443, (31,) Gray gneissoid schist, from W. side of R. R., 60′ do.
7444, (32,) do. from W. side of R. R., 105′ do.
7445, (33,) Coarse brownish gray gneissoid schist, with garnets, 150′ do., from W. side of R. R.
7446, (34,) do., from W. side of R. R., 180′ do.
7447, (35,) Compact dark hornblende schist, from W. side of R. R., 208′ do.
7448, (36,) Coarse gray gneissoid schist, with garnets, 222′ do., in cut just below road bridge that crosses R. R. above Manayunk station.
7449, (37,) do., from W. side of R. R., 246′ do.
7450, (38,) Slaty gray mica schist, colored brown by decomposition from west side of R. R., 306′ do.

7451, (39,) Fine compact garnetiferous mica schist, from W. side of R. R., opposite Manayunk station, 362′ below No. 29.

7452, (40,) Fine slaty mica schists, from W. side of R. R., 410′ do.

7453, (41,) Coarse gneissoid schist, 516′ do. on W. side of R. R., and on north side of public road that crosses under R. R. just south of Manayunk station.

Locality 233.

Commences at a point in West Manayunk, where the upper bridge crosses the Schuylkill river, and extends to a point below lower bridge, where finger board directs to West Laurel Hill Cemetery, all in West Manayunk.

7454, (1,) Slaty gray mica schist (gneissoid) mica in small silvery scales 75 paces below the center of first road bridge below Manayunk station.

7455, (2,) do., from W. side of R. R., 10′ below No. 1.

7456, (3,) do., from W. side of R. R., 18′ do.

7457, (4,) do., (2 specimens) from W. side of track, 35 paces, do.

7458, (5,) do., 150 paces below No. 4, from W. side of R. R.

7459, (6,) do., from W. side of R. R., 15′ below No. 5.

7460, (7,) Slaty gneissoid mica schist, mica in small black and silvery scales, from W. side of R. R., 45′ do.

7461, (8,) Slaty gneissoid mica schist, mica in silvery scales, from W. side of R. R., 90′ do.

7462, (9,) do., from W. side of R. R., 110′ do.

7463, (10,) Slaty gneissoid mica schist, mica in silvery flakes, from W. side of R. R., 140′ do.

7464, (11,) Coarse grained mica schist, from W. side of R. R., 150′ do.

7465, (12,) Fine grained gneissoid schist, from W. side of R. R., 190′ do.

7466, (13,) do., from W. side of R. R., 235′ do.

7467, (14,) Heavy brown garnetiferous gneissoid schist, from W. side of R. R., 265′ below No. 5.
7468, (15,) Slaty silvery mica schist, from north side of public road that crosses under R. R., and on W. side of R. R., 168 paces below No. 14.
7469, (16,) Medium coarse grayish schist, 40 paces below No. 15, pacing along R. R. between R. R. and river.
7470, (17,) Coarse gray and brown gneissoid schist, 40′ below No. 16, between R. R. and river.
7471, (18,) Muscovite, biotite schist, with garnets, between R. R. and river, 60′ do.
7472, (19,) do., on W. side of R. R., 86′ do.
7473, (20,) do., on W. side of R. R., 104′ do.
7474, (21,) Biotite, muscovite schist, from bank on W. side of R. R., 164′ do.
7475, (22,) Coarse muscovite, biotite schist, (2 specimens,) 210′ do., from bank on west side of R. R., 100′ north of path with sign board "To West Laurel Hill Cemetery."

Locality 240.

Commences where the lower bridge crosses the Schuylkill river in Manayunk, and extends to the mouth of Wissahickon creek. All on E. side of river in city of Philadelphia.
7476, (1,) Coarse muscovite, biotite gneissoid schist, with garnets and tourmaline, 3′ south from south wall of Perseverance Mills, in Lower Manayunk, on Ridge road.
7477, (2,) Dark hornblendic schist, from exposures on Ridge road, 23′ below No. 1.
7478, (3,) Coarse muscovite, biotite gneiss, with garnets from same exposure, 27′ do.
7479, (4,) Medium fine, do., from same exposure, 40′ do.
7480, (5,) Dark hornblende schist, with large imbedded garnets, 48′ do.
7481, (6,) Coarse, muscovite, biotite gneiss with garnets, from same exposure, 49′ do.

7482, (7,) Muscovite, biotite gneissoid schist, with garnets very plainly imbedded, from same exposure, 61′ below No. 1.

7483, (8,) Muscovite, biotite schist, with garnets, (2 specimens,) 345′ below No. 7, measuring direct along road, in stream 30′ S. from frame house owned by Mr. Ryder, on east side of Ridge road.

7484, (9,) do., exposures on Ridge road 30′ below No. 8.

7485, (10,) Dark hornblende schist, from above exposure, 80′ do.

7486, (11,) Coarse muscovite, biotite gneiss from same exposure, 81′ do.

7487, (12,) do., 110′ do., exposure on E. side of Ridge Road, 10′ N. from north wall of "Enterprise Mills."

7488, (13,) do., 55′ below No. 12, and 3′ from S. E. corner of lower building of "Enterprise mills."

7489, (14,) Grey schist, with small embedded garnets 97′ do., from exposure on road.

7490, (15,) 120′ do., from exposure on road.

7491, (16,) do. 135′ do., from same exposure close to N. E. corner of house owned by W. L. Jones.

7492, (17,) Muscovite, biotite schist, 250′ below No. 16, measuring direct along road to line of strike of specimen. In yard belonging to lower house of W. L. Jones, on E. side of Ridge road.

7493, (18,) Hornblende schist, with garnets 65′ below No. 17 by direct measurement. Exposure at north end of store-house belonging to W. L. Jones, on E. side of road.

7494, (19,) Biotite, muscovite schist, from same exposure, 4′ below No. 18.

7495, (20,) Dark hornblende schist, with garnets, (2 specimens,) 30′ below No. 19, measuring direct, exposure at south end of same house.

7496, (21,) Biotite gneissoid schist, from same exposure, 2′ below No. 20.

7497, (22,) Dark hornblende schist, with garnets, from same exposure, 3′ below No. 20.

7498, (23,) Biotite, schist with some muscovite, (2 specimens,) from same exposure, 6′ do.

7499, (24,) Grey and brown mica schist, with flakes of silvery mica, (2 specimens,) from exposure on E. side of road, 12′ below No. 23.

7500, (25,) Biotite, muscovite schist, with small garnets, from same exposure, 32′ do.

7501, (26,) do., from same exposure, 54′ do.

7502, (27,) Biotite muscovite schist, with small garnets, 135′ below No. 26, measuring direct; exposure in bank on E. side of road leading to Wissahickon station.

Locality 241.

Commences at mouth of Wissahickon creek, on east side of the Schuylkill river, and takes in all exposures to Reading R. R. bridge crossing the river at the Falls of Schuylkill.

7503, (1,) Biotite, muscovite schist, from exposure in Wissahickon creek, between Ridge road bridge and dam.

7504, (2,) do. 120 paces below No. 1, pacing direct along Ridge road; exposure in bank about 50′ S. from hotel owned by Murphy.

7505, (3,) do. 39′ below No. 2, in bank back of house owned by John Dobson.

7506, (4,) do. with fibrolite, 50′ do. Exposure in roadside, on property of Mr. Gukes.

7507, (5,) Bronze colored schist, 330 paces below No. 4, pacing along Ridge road; exposure on N. side of School Lane, 65 paces W. from School Lane station.

7508, (6,) Slaty gneissoid mica schist, with silvery flakes of mica, discolored by iron oxide, 32′ below No. 5, from same exposure on School Lane.

7509, (7,) Slaty gneissoid mica schist, with silvery flakes of mica, discolored by iron oxide, 89′ below No. 5, from S. side of School Lane.

7510, (8,) Muscovite, biotite gneissoid schist, with small garnets imbedded, 167′ do. Exposure in Ridge road.

7511, (9,) do. 220′ do. from N. end of old quarry on E. side of Ridge road.

7512, (10,) do. 265′ do. from same quarry.

7513, (11,) do. 322′ do. from excavation in woods on east side of Ridge road.

7514, (12,) do. 361′ do. from bank on east side of Ridge road, opposite church.

7515, (13,) Muscovite, biotite schist, 396′ do. and 240 paces below No. 12, measuring direct along Ridge road; in yard of Powers & Weightman's Chemical Works.

7516, (14,) Dark gray biotite schist, with a little muscovite, about 135′ below No. 13, (geologically,) and 225 paces do. pacing direct down Ridge road on east side of road.

7517, (15,) Compact light gray biotite, muscovite, gneissoid schist, about 202′ below No. 14, (geologically,) and 380 paces do. pacing along Ridge road, from most easterly side of J. Dobson's quarry on east side of road.

7518, (16,) Compact dark gray do. 6′ below No. 15, from same quarry.

7519, (17,) Compact light gray, muscovite, biotite schist, with garnets, 56′ do. from same quarry.

7520, (18,) Compact dark gray biotite schist, 126′ do., from quarry on west side of Ridge road, owned by H. S. Dickson, from north end of quarry.

7521, (19,) Compact light gray muscovite, biotite schist, with small garnets, 196′ do. from same quarry.

7522, (20,) do. 296′ do. from south end of same quarry, and at foot of P. & R. R. R. embankment, close to the Falls bridge.

Locality 242.

Commences at south line of R. R. bridge crossing the Schuylkill river at or just below the Fall of Schuylkill, and extends along river drive on E. side of river to Strawberry Mansion.

7523, (1,) Light gray muscovite, biotite gneissoid schist, from exposure at foot of R. R. embankment, on south side of R. R. and east side of river drive.

7524, (2,) Coarse grayish biotite schist, 31′ below No. 1, from the same exposure.

7525, (3,) do. 81′ do. from do.

7526, (4,) Finer light gray biotite gneissoid schist, 136′ do. from do.

7527, (5,) Dark gray biotite gneiss, 171′ do. from do.

7528, (6,) Gray muscovite biotite gneiss, 203′ do. from do.

7529, (7,) do. 251′ do. from do.

7530, (8,) Dark slaty biotite gneissoid schist, 286′ do. from do.

7531, (9,) Dark biotite gneissoid schist, with biotite and ferruginous quartz, 354′ do. from do.

7532, (10,) Dark gray biotite gneiss, 392′ do. from do.

7533, (11,) Coarse gray muscovite, biotite schist, with garnets, 450′ do. from same exposure, just behind fence of Laurel Hill cemetery, and opposite guard box on west side of river drive.

7534, (12,) Coarse muscovite biotite schist, 197′ below No. 11, measuring direct along drive; exposure on east side of drive.

7535, (13,) do. 49′ below No. 12, from same exposure.

7536, (14,) Biotite gneissoid schist, discolored by iron oxide, 111′ do. from do.

7537, (15,) do. 214′ below No. 14, measuring direct along drive; exposure on E. side of drive.

7538, (16,) Muscovite biotite schist, 48′ below No. 15, from same exposure.

7539, (17,) Muscovite biotite schist, discolored by iron oxide 104′ below No. 15, from same exposure.
7540, (18,) do. 168′ do. from do.
7541, (19,) Compact grayish muscovite biotite gneiss, 228′ do. from do.
7542, (20,) Dark slaty biotite and muscovite gneissoid schist, with impressions of garnets, 296′ do. from exposure in Cemetery Lane.
7543, (21,) Gray biotite muscovite gneissoid schist, with garnets, 240′ below No. 20, measuring direct along river drive, from E. side of drive.
7544, (22,) Coarse muscovite biotite gneiss, with elements well developed, 10′ below No. 21, from same exposure on east side of drive.
7545, (23,) Compact gray muscovite, biotite gneiss, 13′ do. from same exposure.
7546, (24,) Gray muscovite, biotite gneiss, with garnets, 58′ do. from do.
7547, (25,) do. 100′ do. from do.
7547*a*,(26,) Coarser do. 147′ do. from do.
7548, (27,) do. 267′ below No. 26, measuring direct along drive, from east side of drive.
7549, (28,) Compact garnetiferous muscovite biotite gneiss, 6′ below No. 27, from same exposure.
7550, (29,) Dark discolored biotite gneiss, 50′ do. from do.
7551, (30,) Dark gray compact gneiss, with garnets, 91′ do. from do.
7552, (31,) Dark hornblendic gneiss, 106′ do. from do.
7553, (32,) Muscovite, biotite gneiss, with a pink tinge, 127′ do. from do.
7554, (33,) do. 181′ do. from do.
7555, (34,) Hornblendic gneiss, 194′ do. from do.
7556, (35,) Dark hornblendic gneiss, with pyrite, 249′ do. close to north side of entrance to steps ascending to Strawberry Mansion.
7557, (36,) Pinkish gneiss, with pyrite, 254′ do. Exposure at south side of same steps.
7558, (37,) Dark hornblendic gneiss, 265′ do. from same exposure.

7559, (38,) Dark hornblendic gneiss, with pyrite, 302′ below No. 27, from Strawberry Mansion bluff, at foot of milestone, on which is inscribed, "3 miles to Fairmount."

7560, (39,) Dark biotite gneiss, with pyrite resembling a hornblende gneiss, 334′ do. from same bluff.

7561, (40,) Pinkish gneissoid schist, with garnets, 364′ do. from do.

7562, (41,) do. 445′ do. from exposure on east side of river drive, where it makes a bend to the east, and last exposure to be seen on that side.

Locality 243.

Commences at the south side of road, leading to Strawberry Mansion, (river drive at bend,) and extends to Columbia Avenue bridge.

7563, (1,) Slaty biotite gneissoid schist, from exposure in bank at south side of river, and 67′ below No. 7562.

7564, (2,) Muscovite, biotite gneissoid schist, 34′ below No. 1, from bridle path about 45′ south of bridge over stream.

7565, (3,) do. 76′ do. in woods on east side of bridle path.

7566, (4,) do. 112′ do. from same exposure.

7567, (5,) do. 110′ below No. 4, measuring direct along bridle path.

7568, (6,) do. 45′ below No. 5, from east side of bridle path.

7569, (7,) do. with magnetite 99′ do. from same exposure.

7570, (8,) Muscovite biotite gneiss, 148′ do. from do.

7571, (9,) do. 212′ do. from do.

7572, (10,) do. 242′ do. from east side of path opposite small pier in river.

7573, (11,) do. 309′ do. exposure at bend of bridle path, about 60 yards below small pier.

7574, (12,) Muscovite biotite gneiss, 135 paces below No. 11, pacing across woods and stream, parallel with river. Exposure 30 paces south from stream, and 50 paces from river.

7575, (13,) Muscovite biotite gneissoid schist, 27′ below No. 12, from same exposure in woods.

7576, (14,) do. 400 paces below No. 13, pacing along path; exposure close to river's edge, and at junction of bridle path and path along the river.

7577, (15,) Coarse muscovite biotite gneissoid schist, 23′ below No. 14, close to river's edge.

7578, (16,) Finer muscovite biotite schist, 50′ do. from east side of path.

7579, (17,) do. 106′ do. exposure on the west side of path, close to water's edge, just above Rockland Steamboat Landing.

Locality S.

Takes in all quarries and exposures on east side of the Schuylkill river, from Rockland Steamboat Landing to Fairmount Water Works.

7580, (1,) Muscovite biotite schist, with garnets from top of quarry at Rockland Landing.

7581, (2,) Coarse-grained do. 4′ below No. 1, from quarry.

7582, (3,) Garnetiferous gneiss, 19′ do. from do.

7583, (4,) Dark fine grained hornblendic gneiss, 30′ do., from same quarry.

7584, (5,) Dark coarser, do. 40′ do.

7585, (6,) do. 50′ do.

7586, (7,) Fine grained garnetiferous gneiss, 57′ do.

7587, (8,) do. 69′ do.

7588, (9,) do. 77′ do.

7589, (10,) Compact hornblendic gneiss, with garnets and pyrite, 90′ do.

7590, (11,) Fine grained gneiss, 95′ do.

7591, (12,) Gneissoid schist, discolored by iron oxide, about 112 paces below No. 11, in bank on east side of Phila. and Reading R. R.

7592, (13,) Muscovite, biotite gneissoid schist, 76′ paces below No. 12, from bank exposure on east side of P. and R. R. R.
7593, (14,) Coarse grained gneiss, 8′ below No. 13.
7594, (15,) do. 13′ do.
7595, (16,) Brown gneiss, decomposing 79′ below No. 15, from small exposure in bank on east side of R. R.
7596, (17,) Coarse gneiss, 56 paces below No. 16, in bank on east side of R. R.
7597, (18,) Gneiss with red iron oxide stains, 120 paces below No. 17, from north end of White's quarry, east side of R. R.
7598, (19,) Gneiss, 8′ below No. 18.
7599, (20,) Gneiss with quartz predominating, 17′ do.
7600, (21,) Muscovite, biotite gneiss. 31′ do.
7601, (22,) Coarse and fine grained do. 40′ do.
7602, (23,) Muscovite and biotite gneissoid schist, 51′ do.
7603, (24,) Light colored do. 65′ do.
7604, (25,) Brownish do. 97′ do.
7605, (26,) Gray do. 107′ do.
7606, (27,) do. do. 113′ do.
7607, (28,) Brownish do. with garnets, 134′ do.
7608, (29,) Light gray gneiss, 153′ do.
7609, (30,) do. 166′ do.
7610, (31,) do. 181′ do.
7611, (32,) Dark gray hornblendic gneiss, 192′ do.
7612, (33,) Light gray gneiss, 257′ do.
7613, (34,) Coarse do. 264′ do.
7614, (35,) do. 297′ do.
7615, (36,) Light gray gneiss, 299′ do.
7616, (37,) Gray gneiss, 324′ do.
7617, (38,) do. with garnets, 361′ do.
7618, (39,) Hornblendic gneiss, 385′ do.
7619, (40,) Brownish gneiss, 405′ do.
7620, (41,) do. 431′ do. from bank exposure on east side of R. R.
7621, (42,) do. 450′ do. do.

7622, (43,) Gray gneiss, 465′ below No. 18, from quarry on east side of R. R.
7623, (44,) Light gray gneiss, 483′ do. from same quarry.
7624, (45,) do. 528′ do. do.
7625, (46,) do. 576′ do. do.
7626, (47,) Brownish gray gneiss, 37 paces below No. 46, from exposure on west side of R. R.
7627, (48,) do. 7′ below No. 47.
7628, (49,) do. 18′ do.
7629, (50,) Dark gray biotite gneiss, with garnets, 26′ do.
7630, (51,) Biotite gneiss, 70′ below No. 50, measured direct, on same side of R. R.
7631, (52,) do. 8′ below No. 51.
7632, (53,) Muscovite, biotite gneiss, 50′ below No. 52, measuring direct from bank exposure on east side of R. R.
7633, (54,) do. with garnets, 290 paces below No. 53, from bank exposure, close to east side of R. R.
7634, (55,) Gray gneiss, 16′ below No. 54, close to east side of R. R.
7635, (56,) do. 50 paces below No. 55, from top of bluff on east side R. R.
7636, (57,) do. 8′ below No. 56.
7637, (58,) do. 19′ do.
7638, (59,) Dark hornblendic gneiss, 30′ do.
7639, (60,) Light-gray muscovite biotite gneiss, 48′ do.
7640, (61,) Brownish gneiss, 65′ do.
7641, (62,) Dark hornblendic gneiss, 124′ below No. 61, close to east side of R. R.
7642, (63,) Gneiss, decomposing, 26′ below No. 62, in bank close to east side of R. R., and 80′ above little station shanty.
7643, (64,) Light-gray muscovite biotite gneiss, 64 paces below No. 63, pacing along R. R. to line of strike of the specimens.
7644, (65,) Brownish gray gneiss, 35′ below No. 64, from east side of river road, measuring on line with do.

7645, (66,) Brownish gray gneiss, 55′ below No. 64, on same side of road, measuring as before.
7646, (67,) Gray muscovite, biotite gneiss, 85′ do.
7647, (68,) do. 110′ do.
7648, (69,) do. with brown iron stains 135′ do.
7649, (70,) Fine biotite gneiss with garnets, 159′ do.
7650, (71,) Brownish biotite gneiss with garnets, 205′ do.
7651, (72,) Brownish gray muscovite biotite gneiss, 242′ do.
7652, (73,) Gray muscovite biotite gneiss, 283′ do.
7653, (74,) do. 306′ do.
7654, (75,) do. 329′ do.
7655, (76,) do. 439′ do.
7656, (77,) do. 493′ do.
on E. side of river drive, just under Penna. R. R. bridge.
7657, (78,) do. 532′ do.
7658, (79,) do. 564′ do.
from N. end of tunnel.
7659, (80,) do. 15′ No. 79.
7660, (81,) do. 27′ do.
7661, (82,) do. 53′ do.
7662, (83,) Dark hornblendic gneiss, 50′ below No. 82, measuring direct from east side of river road, just above Girard ave. bridge.
7663, (100,) Light medium coarse muscovite biotite gneiss, 200′ paces below No. 82, on east side of river road.
7664, (101,) do. 30′ below No. 100, measuring on line with river road.
7665, (102,) Dark hornblende schist, with white spots of feldspar, 52′ do.
7666, (103,) Medium fine gray biotite gneiss, 82′ do.
7667, (104,) Coarser brownish do. 152′ do.
7668, (105,) do. 189′ do.
7669, (107,) Medium fine gray muscovite, biotite gneiss, 391′ do. measuring as before.
7670, (108,) Coarser do. with garnets, from bluff 451′ do.
7671, (109,) Medium coarse gray muscovite biotite gneiss, 493′ do.

7672, (110,) Coarse gray muscovite, biotite gneiss, 527′ below No. 100.
7673, (111,) do. 592′ do.
7674, (112,) do. 628′ do.
7675, (113,) do. from bluff, 660′ do. before.
7676, (114,) do. from bank, 728′ do. before.
7677, (115,) Grayish biotite gneiss with garnets from bank, 770′ do.
7678, (116,) Medium coarse biotite gneiss from bank, 808′ do.
7679, (117,) do. with garnets from bank, 850′ do.
7680, (118,) Coarse grained muscovite, biotite gneiss with apatite from bluff, 921′ do.
7681, (119,) Coarse grained gneiss, 950′ do.
7682, (120,) do. 1002′ do.
7683, (121,) Bronze colored gneiss, 1052′ do.
7684, (122,) Biotite gneiss discolored with iron oxide stains, 1112′ do. close to edge of river road, back of Lemon hill tower.
7685, (123,) Medium coarse gray gneiss, 1160′ do.
7686, (124,) Coarse and fine gray gneiss from bluff, 1190′ do.
7687, (125,) Medium fine gray gneiss, 1227′ do.
7688, (126,) Coarser do. 1271′ do.
7689, (127,) Gray hornblendic gneiss, with long slender crystals of hornblende embedded in quartz and feldspar, 1306′ do.
7690, (128,) Coarse muscovite biotite gneiss, 1341′ do.
7691, (129,) Dark gray gneiss, 1371′ do.
7692, (130,) Gneiss with the feldspar decomposing, 1409′ do.
7693, (131,) Dark gray gneiss, 1441′ do.
7694, (132,) do. 1481′ do.
7695, (133,) do. 1510′ do.
7696, (134,) do. 1539′ do.
7697, (135,) do. 1569′ do.
7698, (136,) do. 1591′ do.
7699, (137,) do. 1625′ do.

7700, (138,) Dark gray gneiss, with iron oxide stains, 1645′ below No. 100, and 133′ above upper corner of the Park Guards' House.

7701 to 7996—SECTION H.

Gulf Mills and Cobbs Creek.

Locality 248.

Begins at north end of Hitner's marble quarry, one mile north of Gulf Mills, and extends south along the road, through Gulf Mills to Bryn Mawr, Lower Merion Twp., Montgomery Co.

7701, (1,) Light-gray marble, from north end of Hitner's marble quarry.

7702, (2,) Gray marble, 75′ below No. 1, from south end of quarry.

7703, (3,) Hydro-mica schist, 253′ do. from edge of road about 300 yards east of quarries.

7704, (4,) do. 328′ do.

7705, (5,) do. 457′ do.

7706, (6,) Crystalline limestone with hydro-mica, called "Bastard marble," 149 paces below No. 5. Outcrop on the property of Alex. Heany, in corner of field on south side of road.

7707, (7,) do. 10′ below No. 6, same outcrop.

7708, (8,) do. with pyrite, 30′ do. Exposure in field on west side of road, on the property of Mr. Anderson.

7709, (9,) Bastard marble, 90 paces below No. 8, pacing along road, exposure in the road.

7710, (10,) do. 9′ below No. 9, exposure in same road.

7711, (11,) do. showing weathered surface, exposure in same road, 29′ do.

7712, (12,) Bastard marble, 69′ do.

7713, (13,) Marble in bastard marble, 83′ do.

7714, (14.) Bastard marble with pyrite, 100′ do.

7715, (15,) do. with pyrite decomposed, 115′ do.

7716, (16,) Bastard marble with seams of calcite, 126′ bel. No. 9.
7717, (17,) Bastard marble with pyrite, 140′ do.
7718, (18,) do. 152′ do.
7719, (19,) do. 168′ do.
7720, (20,) do. 180′ do.
7721, (21,) do. 196′ do.
7722, (22,) do. 218′ do.
7723, (23,) do. 227′ do.
7724, (24,) do. 253′ do.
7725, (25,) do. 262′ do.
7726, (26,) do. 347′ do.
7727, (27,) Light-gray marble, weathered, 392′ do. from field of Mr. Hughes, on east side of road.
7728, (28,) Bastard marble with decomposed pyrite, 492′ do., exposure in same field, opposite the residence of Mr. Hughes.
7729, (29,) Yellow ferruginous quartzite, 110 paces south of No. 28, on south side of road leading from Gulf Mills to King of Prussia near fork of road, on property of Mr. Hughes.
7730, (30,) Bastard marble with pyrite, 55 paces below No. 29, pacing down above mentioned road to strike of strata; exposure in field about 150 yards east of road.
7731, (31,) do. 25′ below No. 30, same exposure in field.
7732, (32,) Red ferruginous hydro-mica schist, 200′ below No. 31, on west side of road.
7733, (33,) do. 250′ do. on west side of road.
7734, (34,) do. 275′ do. do.
7735, (35,) do. 311′ do. do.
7736, (36,) Gray hydro-mica schist with brown iron stains, 185 paces below 35, exposure on same road.
7737, (37,) do. 17′ below No. 36, road exposure.
7738, (38,) Gray hydro-mica schist, 38′ do., road exposure.
7739, (39,) do. 62′ do. road exposure.
7740, (40,) do. 92′ do. do.
7741, (41,) do. 108′ do. do.
7742, (42,) do. 125′ do. do.

7743, (43,) Gray hydro-mica schist, discolored by iron oxide, 113 paces below No. 42, pacing along road from gutter on east side of road.

7744, (44,) Bastard marble and pyrite, stained by decomposed pyrite, 214 paces below No. 43, pacing down road, on east side of road.

7745, (45,) do. with weathered surface, 30′ below No. 44, in field of E. McFarland, on west side of road.

7746, (46,) do. 53′ do. on same property.

7747, (47,) do. 78′ do. do.

7748, (48,) do. 92′ do. on property of F. Jones.

7749, (49,) Bastard marble with decomposed pyrite, 106′ do., on same property.

7750, (50,) Light-colored bastard marble, 121′ do. on same property.

7751, (51,) do. 265′ do. on same property.

7752, (52,) Bastard marble with decomposed pyrite, 305′ do. on same property.

7753, (53,) do. 453′ do. exposure on east side of road, close to north end of bridge over Gulf creek.

7754, (54,) do. 457′ do. from same exposure.

7755, (55,) do. 477′ do. in field of J. J. Hughes, on east side of road and close to above mentioned bridge.

7756, (56,) do. 536′ do. in same field 20 to 25 paces from creek.

7757, (57,) Bastard marble, 698′ do. exposure on east side of road leading from Gulf Mills to Bryn Mawr, about 30 paces from the "Bird-in-Hand" tavern.

7758, (58,) do. 704′ do. exposure on same road.

7759, (59,) do. 710′ do. do.

7760, (60,) do. with pyrite, 716′ do.

7761, (61,) do. 725′ do.

7762, (62,) do. 733′ do.

7763, (63,) do. showing the weathered surface, 739′ do.

7764, (64,) Bastard marble with white calcite and pyrite, 751′ below No. 44.
7765, (65,) Bastard marble with pyrite, 759′ do.
7766, (66,) do. 773′ do.
7767, (67,) Marble in bastard marble, 779′ do.
7768, (68,) do. 791′ do.
7769, (69,) Dark bastard marble with pyrite, 801′ do.
7770, (70,) Bastard marble stained by decomposed pyrite, 891′ do. exposure at bend of road.
7771, (71,) do. 908′ do.
7772, (72,) Greenish hydro-mica schist stained by iron oxide, 1172′ do.
7773, (73,) Green hydro-mica schist, 1222′ do.
7774, (74,) do. with iron oxide stains, 1280′ do.
7775, (75,) do. 1335′ do.
7776, (76,) do. 1431′ do.
7777, (77,) Greenish gray hydro-mica schist, 1477′ do.
7778, (78,) do. with decomposed pyrite in quartz, 1539′ do.
7779, (79,) Greenish gray hydro-mica schist, 1641′ do.
7780, (80,) do. with iron oxide stains, 1706′ do.
7781, (81,) do. 1771′ do.
7782, (82,) do. 1856′ do.
7783, (83,) do. 1943′ do.
7784, (84,) do. 2013′ do.
7785, (85,) do. 2069′ do.
7786, (86,) do. 2149′ do.
7787, (87,) do. 2221′ do.
7788, (88,) do. 2286′ do.
7789, (89,) Trap, 125 paces below No. 88, exposure in woods on east side of road, near cross roads.
7790, (90,) Red ferruginous decomposing hydro-mica schist, 245 paces below No. 89, pacing down road from gutter.
7791, (91,) do. 50′ below No. 90, from road bank.
7792, (92,) do. 140′ do. exposure at corner where the road crosses the road leading from Radnor to Conshohocken.
7793, (93,) Gray hydro-mica schist with garnets, 176 paces below No. 92, from east gutter.

7794, (94,) Serpentine, 27′ below No. 93, by direct measurement, on west side of road, (may not be in place.)
7795, (95,) do. 60′ below No. 94, measured direct.
7796, (96,) Slaty porphyritic conglomerate, with the feldspar decomposing, 76′ below No. 95, measured direct from road exposure.
7797, (97,) do. 60′ below No. 96, from road exposure.
7798, (98,) Slaty porphyritic conglomerate, 128′ do. do.
7799, (99,) Coarser do. 205′ do. just north of house owned by M. Walker.
7800, (100,) do. 145 paces below No. 99, road exposure.
7801, (101,) Finer do. 60′ below No. 100, do.
7802, (102,) do. 122′ do. do.
7803, (103,) Semi-porphyritic gneiss, (slaty,) 190′ do. do.
7804, (104,) do. 147 paces below No. 103, do.
7805, (105,) do. 142′ below No. 104, do.
7806, (106,) do. 123 paces below No. 105, do.
7807, (107,) Gray gneiss, 78′ below No. 106, do.
7808, (108,) Grayish gneiss, 130′ do. exposure in road a little north of house owned by David Stacker.
7809, (109,) Gneiss with pink feldspar, 530 paces below No. 108, pacing along road exposure at roadside.
7810, (110,) Decomposed gneiss, 30′ below No. 109, road exposure.
7811, (111,) Brownish gneiss, 100 paces below No. 110, do.
7812, (112,) do. decomposing, 30′ below No. 111, do.
7813, (113,) Gray porphyritic gneiss, 150′ do. do.
7814, (114,) Light-gray do. 190′ do. do.
7815, (115,) Compact light-gray gneiss, 380 paces below No. 114, do.
7816, (116,) Grayish gneiss, 75 paces below No. 115, road exposure; 175 paces north from north end of Green Tree Tavern.
7817, (117,) Slaty semi-porphyritic gneiss, 596 paces below No. 116, exposure in road 423 paces south from north end of Green Tree Tavern.

7818, (118,) Dark-colored gneiss with garnets, 61′ below No. 117, in road about 100 yards north of pond on the property of Mrs. Morris.
7819, (119,) Brown granitoid gneiss colored with iron oxide, 429 paces below No. 118, exposure in bank on east side of road.
7820, (120,) Semi-porphyritic gneiss, 251 paces below No. 119, road exposure.
7821, (121,) Dark hornblendic gneiss, 320 paces below No. 120, do.
7822, (122,) Soapstone, with iron oxide stains, 155 paces below No. 121, do.
7823, (123,) Slaty hornblendic gneiss, 158 paces below No. 122, exposure at the corner of Gulf road and Roberts road.
7824, (124,) Light slaty argillaceous hydro-mica schist, 62′ below No. 123, exposure in Gulf road.
7825, (125,) do. 114′ do. do.
7826, (126,) do. 179′ do. do.
7827, (127,) do. 247′ do. do.
7828, (128,) Fine do. 325′ do. do. near entrance to Baptist church grounds.
7829, (129,) do. 396′ do. do.
7830, (130,) Coarser do. with garnets, 441′ do. do.
7831, (131,) Finer do. without garnets, 501′ do. do.
7832, (132,) do. 548′ do. do.
7833, (133,) do. 606′ do. do.
7834, (134,) do. 656′ do. do.
7835, (135,) Milky quartz, 710′ do. do.
7836, (136,) Coarse argillaceous mica schist, 787′ do. do.
7837, (137,) Gray schist with garnets, 837′ do. do.
7838, (138,) do. 875′ do. do.
7839, (139,) Slaty do. 930′ do. do.
7840, (140,) Hornblende schist, 1027′ do. do.
7841, (141,) Slaty gray schist, 1081′ do. do.
7842, (142,) Fine-grained do. with garnets, 1129′ do. do.
7843, (143,) Coarse do. 1161′ do. do.
7844, (144,) Fine-grained compact do. 1203′ do. do.

7845, (145,) Dark slaty hornblende schist, decomposing on the edges, 1301′ below No. 123, road exposure.
7846, (146,) Decomposing schist, (garnetiferous,) 1373′ do. from same road.
7847, (147,) Coarse argillaceous hydro-mica schist with brown strains, 147 paces below No. 146, same road.
7848, (148,) Slaty do. with garnets, 55′ below No. 147, road exposure.
7849, (149,) Slaty gray schist with garnets, 101′ do. road exposure.
7850, (150,) do. 149′ do. road exposure.
7851, (151,) Coarse yellowish argillaceous hydro-mica schist with garnets, 187′ do. road exposure.
7852, (152,) do. 237′ do. road exposure, 37′ paces north of Morris avenue, Bryn Mawr.

Locality 256.

Exposures in Pennsylvania railroad cut just below Bryn Mawr Station, Lower Merion township, Montgomery county.
7853, (1,) Coarse yellowish hydro-mica schist decomposing from north end of cut, 180 paces at right angle to strike below No. 7852.
7854, (2,) Fine grained schist, (decomposed,) 136′ below 1, measuring direct in R. R. cut.
7855, (3,) Partially decomposed schist, 200′ below No. 2, measuring direct.
7856, (4,) Gray micaceous quartzite with iron oxide stains, 40′ below No. 3, measuring direct.
7857, (5,) Partially decomposed compact hydro-mica schist, 66′ below No. 4, measure direct.
7858, (6,) do. 73′ below No. 5, measuring direct.
7859, (7,) do. coarser and with garnets, 77′ below No. 6, measuring direct.
7860, (8,) Yellowish decomposing schist, 91′ below No. 7, measuring direct.
7861, (9,) White earth from decomposed soapstone, 75′ below No. 8, measuring direct from cut.

7862, (10,) Greenish earth from decomposed schist, 94′ below No. 9, measuring direct from cut.
7863, (11,) Partially decomposed talcose schist, 80′ below No. 10, measuring direct.
7864, (12,) White earth from decomposed soapstone, 63′ below No. 11, measuring direct.

Locality 256a.

Exposures on road leading from Bryn Mawr to Merion Square, called Black Rock road.
7865, (1,) Serpentine from north end of the exposure.
7866, (2,) Serpentine with staurolite, 150′ below No. 1.

Locality 256—Continued.

7867, (13,) White earth from decomposed talcose schist, 76′ below No. 12, measuring direct.
7868, (14,) Decomposing yellowish schist, 147′ below No. 13, measuring direct.
7869, (15,) Yellow earth from decomposed ferruginous talcose schist, 156′ below No. 14, do.
7870, (16,) Red earth, from decomposed ferruginous talcose schist, 115′ below No. 15, measuring in cut a few yards south of bridge crossing R. R.
7871, (17,) White earth, from decomposed talcose schist, 82′ below No. 16, measuring direct.
7872, (18,) Red earth, from decomposed talcose schist, (ferruginous,) 93′ below No. 17.
7873, (19,) Yellow decomposing talcose schist, 82′ below No. 18, measuring direct.
7874, (20,) Red ferruginous decomposing talcose schist with garnets, 105′ below No. 19, measuring direct.
7875, (21,) do. 136′ below No. 20, measuring direct.
7876, (22,) Red earth, from decomposed talcose schist, 78′ below No. 21, measuring direct.
7877, (23,) do. 225′ below No. 22, measuring direct from near the south end of cut.

Locality 273.

Commences about one mile north from Church road, on the property of Mrs. Gaagus, on west side of Cobbs creek, and takes in all exposures to Clinton Mills.

7878, (1,) Gray slaty mica schist, from property of Mrs. Gaagus, on west side of Cobbs creek, 230 yards north of road to Haverford.

7879, (2,) Coarse garnetiferous talcose schist, with iron oxide stains, 2290 yards below No. 1, measuring direct along Haverford road to Church road, exposure on north side of Church road.

7880, (3,) do. 30′ below No. 2, from south side of Church road.

7881, (4,) Compact brownish mica schist with garnets, 475 paces south of No. 4, from north end of quarry on east side of road running along Cobbs creek, and 150 yds. north of Castle Hill Mills.

7882, (5,) Fine gray mica schist, 50′ below No. 4, same quarry.

7883, (6,) do. 123′ below No. 5, S. end of quarry.

7884, (7,) Brownish gneiss with garnets, 54 yards below No. 6, measuring direct, exposure just below breast of dam on west side of creek.

7885, (8,) Gray garnetiferous gneiss, 80′ below No. 7, in bed of stream.

7886, (9,) Coarse brownish gneiss with garnets, 150′ do. do.

7887, (10,) do. 200′ do. do.

7888, (11,) do. gray, 250′ do. do. on line of the north wall of Castle Hill Mills.

7889, (12,) Coarse light-colored granitic gneiss, 93 paces below No. 11, in woods on the west side of creek, below Castle Hill Mills.

7890, (13,) Coarse garnetiferous gneiss, 32 paces below No. 12, in same woods.

7891, (14,) Coarse light-colored gneiss, with weathered surface, 85′ below No. 13, at roadside, west side of the creek.

7892, (15,) Coarse gray gneiss, 151′ do. do.

7893, (16,) Coarse dark-gray garnetiferous gneiss, 221′ below No. 13.
7894, (17,) Coarse gray gneiss, 311′ do. do.
7895, (18,) do. 391′ do. at bend of road and just above the breast of dam at Graves' Mills.
7896, (19,) do. 210′ below No. 18, measuring direct, on west side of creek.
7897, (20,) do. 35′ below No. 19, in field on west side of creek.
7898, (21,) do. 125′ do. in small road on west side of the creek.
7899, (22,) do. 165′ do. do.
7900, (23,) do. 200′ do. exposure at edge of creek and on west side of same.
7901, (24,) Finer gray gneiss, 445′ below No. 23, measuring direct, exposure on west side of dam on the hillside.
7902, (25,) do. 45′ below No. 24, on west side of dam, at old excavation.
7903, (26,) do. 72′ do. on west side of dam, from excavation.
7904, (27,) do. 92′ do. exposure below wall of mill dam, on west side of creek.
7905, (28,) Fine-grained gray gneiss, 122′ do. exposure below dam on east side of creek.
7906, (29,) do. 276′ below No. 28, measuring direct from bed of stream.
7907, (30,) Coarser gray gneiss, 120′ below No. 29, measuring direct along line of stream, exposure in bed of stream.
7908, (31,) Compact gray gneiss, 440 paces below No. 30, pacing along line of creek, from wagon road on west side of creek.
7909, (32,) Fine-grained gray gneiss, stained with iron oxide, 316 paces below No. 31, on west side of creek, behind the row of houses facing on road.

7910, (33,) Fine-grained gray gneiss, with fine white bands of quartz and feldspar, 70′ below No. 32, on west side of the creek, on property of John Ashhurst, Esq.

7911, (34,) Fine-grained gray slaty gneiss, 90 paces below No. 33, exposure on east side of creek, in woods, Mr. Brogan's property.

7912, (35,) Fine-grained gneiss with garnets, 560 paces below No. 34, in county line road, on west side of creek, pacing along line of creek.

7913, (36,) Fine-grained gneiss, 300′ below No. 35, exposure in county line road, about 250 paces east from creek.

7914, (36*a*,) Porphyritic gneiss, 680 paces below No. 36, from bowlder in creek. There are numerous bowlders of the same kind in this neighborhood.

7915, (37,) Dark-gray gneiss, 1348 paces below No. 36, exposure in the bed of the creek, in woods.

7916, (38,) do. with weathered surface, 60′ below No. 37, in bed of creek, same woods.

7917, (39,) Compact gray gneiss, 175′ do. in woods on east side of the creek.

7918, (40,) do. 205′ do. do.

7919, (41,) do. with iron oxide stains, 267′ do. do.

7920, (42,) Compact gray gneiss, 387′ do. in bed of stream.

7921, (43,) Coarser gray gneiss, 205 paces below No. 42, exposure on east side of the creek in new road being made leading into Fairmount Park.

7922, (44,) do. friable through decomposition, 580 paces below No. 43, pacing along line of the creek, exposure just behind Keystone Paper Mills.

7923, (45,) Gray gneiss, 250 paces below No. 44, pacing down stream, on east side.

7924, (46,) do. 12′ below No. 45.

7925, (47,) do. weathered, 100 paces below No. 46, exposure at edge of the creek.

7926, (48,) Gray gneiss, 140′ paces below No. 47, on east edge of creek, 30′ below the breast of dam.
7927, (49,) Coarse gneiss with much feldspar, (discolored,) 160′ below No. 48, exposure in stream.
7928, (50,) do. porphyritic 34′ below No. 49, measuring direct, on east side of creek in woods of J. Sellers.
7929, (51,) do. 201′ below No. 50, measuring direct on same property.
7930, (52,) do. 76′ below No. 51, do.
7931, (53,) do. 231′ do. do.
7932, (54,) do. with weathered surface, 323′ do. do.
7933, (55,) do. 90′ below No. 54, measuring direct, same property.
7934, (56,) Fine-grained gneiss with weathered surface, 123′ below No. 55, do.
7935, (57,) Coarse porphyritic gneiss with weathered surface, 132′ below No. 56, measuring direct.
7936, (58,) do. 118′ below No. 57, measuring direct.
7937, (59,) do. 80′ below No. 58, from same property.
7938, (60,) Fine grained slaty gray gneiss, 162′ below No. 59, measuring direct, same property.
7939, (61,) Coarse porphyritic gneiss, 54′ below No. 60, from the same property.
7940, (62,) do. 132′ below No. 61.
7941, (63,) Coarse garnetiferous gneiss with iron oxide stains, 25′ below No. 62.
7942, (64,) do. 177 paces below No. 63, in the woods.

Locality 274.

Commences with quarry on east side of Cobb's creek, at 63d and Market streets, 27th ward, Phila., and extends to where West Chester and Phila. R. R. crosses Cobb's creek, Darby township, on west side, and Phila. on east side of the creek.

7943, (1,) Coarse gneiss discolored by iron oxide stains, from most westerly end of quarry at 63d and Market streets, 220 paces at right angles to the strike, below No. 7942.

7944, (2,) Dark fine-grained slaty gneiss with garnets, 57′ below No. 1, from same quarry.

7945, (3,) Gray fine-grained gneiss, 179′ do. from same quarry.

7946, (4,) Dark gray fine-grained gneiss with pyrite and garnets, 231′ do. from east end of the same quarry.

7947, (5,)Coarse gneiss discolored by iron stains, about 50′ below No. 4, exposure on west side of creek, in bank behind row of houses, and back of store fronting on Marshall road.

7948, (6,) do. 75′ do. from the same exposure.

7949, (7,) do. 160′ below No. 6, measuring direct at right angles to the strike, exposure in the woods on east side of creek, about 125 yards north of bridge.

7950, (8,) Dark gray fine-grained compact gneiss, 206′ below No. 7, measuring direct, on east side of creek, just back of frame house, close to east end of bridge, on property of Mr. Summers.

7951, (9,) Fine-grained gneiss slightly decomposed, 60′ below No. 8, exposure in Marshall road.

7952, (10,) do. 180′ do. exposure in Marshall road.

7953, (11,) Coarse decomposing gneiss, 230′ do. from old quarry back of West End Mills, on east side of the creek.

7954, (12,) do. 390′ do. from east end of same quarry.

7955, (13,) Finer decomposing gneiss, 569 paces below No. 12, pacing along line of creek from strike of No. 12 to strike of 13, exposure in old quarry in field, the property of Mr. Hoffman, just back of Hoffman's mills.

7956, (14,) do. 27′ below No. 13, from the same quarry.

7957, (15,) Fine-grained grayish gneiss, 50′ below No. 14, on west side of creek from quarry, just back of tavern on church road.

7958, (16,) do. 24′ below No. 15, from the same quarry.

7959, (17,) Coarse dark-gray gneiss with brown stains of iron oxide, 153 paces below No. 16, pacing along line of creek, from strike of No. 16 to strike of No. 17, from east side of creek.

7960, (18,) Dark fine-grained gneiss with brown iron oxide stains, 165 paces below No. 17, pacing at right angles to the strike, exposure in woods on west side of the creek, C. Palmer's property.

7961, (19,) Coarse grayish gneiss with small garnets, 215′ below No. 18, measuring direct, in same woods.

7962, (20,) Fine-grained gneiss, weathered, 50′ below No. 19, in same woods, at edge of creek.

7963, (21,) Medium coarse gray gneiss with tourmaline and fibrolite, 218 paces below No. 20, pacing at right angles to the strike, from quarry just north of West Chester and Phila. R. R. bridge crossing the creek.

7964, (22,) do. 77′ below No. 21, from the same quarry.

Locality 275.

Extends from the crossing of Cobb's creek by the West Chester and Phila. R. R. to Bunting's bridge below Mount Moriah cemetery, Darby township. Delaware county on west side of creek and Phila. on east side.

7965, (1,) Medium coarse gneiss, with quartz crystals, 200′ below east end of R. R. bridge, behind spring-house.

7966, (2,) Medium coarse gneiss with garnets decomposing slightly, 90′ below No. 1, on east side of creek, at edge of mill race.

7967, (3,) Medium coarse grayish gneiss, 180′ below No. 2, measuring direct at right angles to the strike, exposure in stream emptying into Cobb's creek on the east side, and just behind small mill.

7968, (4,) do. with garnets, 60′ below No. 3, from east bank of creek.

7969, (5,) Medium coarse grained gray gneiss, 112′ below No. 3, from old quarry on east side of the creek.
7970, (6,) do. 165′ do. from same quarry.
7971, (7,) do. with garnets, 235′ do. from east bank of creek.
7972, (8,) Medium coarse gray gneiss, 111′ below No. 7, measuring direct at right angles to the strike, from east side of creek.
7973, (9,) do. 180 paces below No. 8, pacing direct down line of creek, exposure in hillside on east side of creek.
7974, (10,) Coarse brownish-gray gneiss with small garnets, 15′ below No. 9, exposure close to the west edge of creek, on the property of the Mount Moriah Cemetery Co.
7975, (11,) Coarse and fine gray gneiss, 160′ below No. 10, measuring direct at right angles to the strike, exposure at edge of creek, on the same property.
7976, (12,) Discolored fine-grained gneiss decomposing, 50′ below No. 11, same property.
7977, (13,) Fine-grained slaty gneiss, 87′ do. from the same property.
7978, (14,) do. 150′ below No. 13, measuring at right angles to the strike, on same property.
7979, (15,) Coarse gray gneiss, 32′ below No. 14, do.
7980, (16,) do. 85 paces below No. 15, pacing at right angles to the strike, do. from exposure at edge of creek.
7981, (17,) Coarse gneiss, 210′ below No. 16, measuring direct at right angles to the strike, from field several hundred yards east of creek.
7982, (18,) do. 138′ below No. 17, measuring direct at right angles to the strike in the same field.
7983, (19,) do. 15′ below No. 18, from the same exposure.
7984, (20,) Coarse gneiss, 17′ below No. 19.
7985, (21,) do. 26′ below No. 20, from the same exposure.

7986, (22,) Fine light gray gneiss, 140 paces below No. 21, pacing at right angles to strike, exposure in quarry near east edge of the creek.

7987, (23,) Coarse gneiss, 28′ below No. 22, from the same quarry.

7988, (23*a*,) Dark hornblendic gneiss with pyrite, about 70′ below No. 23, from quarry in Mount Moriah Cemetery, on west side of the creek.

7989, (24,) Coarse gray gneiss, 105 paces below No. 23, pacing at right angles to the strike, exposure in old excavation in Mount Moriah Cemetery on east side of creek, and about 100 yards back from it.

7990, (25,) do. 20′ below No. 24, from same quarry.

Locality 276.

Extends from where Church Lane crosses Cobb's creek to its confluence with Darby creek. The first specimen of of this locality is taken from just below the Phila., Wilmington and Baltimore Railroad bridge crossing the creek, since the strata above this are included in the strike of locality 275.

7991, (1,) Coarse muscovite biotite granitic gneiss, exposure in field of Thomas Smith, on west side of creek and close to bridge.

7992, (2,) do. 110′ below No. 1, measuring direct at right angles to the strike, from east edge of creek at the bend.

7993, (3,) Coarse gray gneiss, 145′ below No. 2, measuring at right angles to the strike, in old quarry on west side of creek, property of J. Harper.

7994, (4,) Coarse brownish-gray gneiss, 165′ below No. 3, measuring direct at right angles to the strike, exposure on east side of the creek.

7995, (5,) Coarse biotite gneiss, 182′ below No. 4, measuring direct at right angles to the strike, close to the east edge of the creek.

7996, (6,) Quartz in gneiss, 200′ below No. 5, measuring direct at right angles to the strike, exposure on east side of the creek, at the water's edge.

CHESTER VALLEY CROSS-SECTIONS.

Locality β.

One quarter mile south of Centreville, Tredyffrin Twp., Chester Co., on road leading to Spread Eagle.

7997, (1,) Gray limestone, partly crystalline from exposure in road, 60′ north of north wall of grave-yard of the Great Valley Baptist Church.

7998, (2,) Dark-gray marble with hydro-mica, 18′ below spec. 1, in same road.

7999, (3,) do. 54′ do. do. and on line with north wall of grave-yard.

8000, (4,) White marble, 86′ do. do.

8001, (5,) Bastard marble with pyrite, 446′ do. do. close to south end of graveyard.

8002, (6,) Decomposing hydro-mica schist, 240 yards below spec. 5, measuring direct down road, exposure in bank where road turns to east.

Locality a.

Begins at limestone quarry just back of hotel at Howellville, Tredyffrin Twp., Chester Co., extends down road leading to Berwyn to the South Valley Hill slates.

8003, (1,) White marble, from north end of above-named quarry.

8004, (2,) Gray marble, 100′ below spec. 1, from same quarry.

8005, (3,) Light-gray compact limestone, 160′ do. do.

8006, (4,) do. 225′ do. do.

8007, (5,) Decomposing hydro-mica schist, 260′ do. exposure in bank of road just south of houses.

8008, (6,) do. 270′ do.

8009, (7,) Hydro-mica schist, 277′ do. do.

8010, (8,) Blackish do. (carbonaceous?) 285′ do. do.

8011, (9,) Decomposing gray hydro-mica schist with stains from decomposed pyrite, 305′ bel. spec. 1.
8012, (10,) do. 317′ do. do.
8013, (11,) do. 328′ do. do.
8014, (12,) Bastard marble with pyrite, 878′ do. exposure in field on west side of road on property of Mrs. E. Evans.
8015, (13,) do. 891′ do. do.
8016, (14,) do. 908′ do. edge of road.
8017, (15,) do. 912′ do. do.
8018, (16,) do. 926′ do. do.
8019, (17,) Gray hydro-mica schist with decomposed pyrite, 956′ do. exposure in bank on E. side of road just at bend.
8020, (18,) Bastard marble with pyrite, 964′ do. do.
8021, (19,) do. slaty, 974′ do. at roadside.
8022, Hydro-mica schist with lime and quartz, 999′ do. at W. side of road.
8023, (21,) Bastard marble with decomposed pyrite, 1004′ do. at roadside.
8024, (22,) do. 1009′ do. do.
8025, (23,) do. 1017′ do. do.
8026, (24,) do. with white calcite, 1042′ do. do.
8027, (25,) Bastard marble with pyrite, 1049′ do. on west side of road at bend and just north of house of T. Supples.
8028, (26,) Pinkish hydro-mica schist with iron oxide stains, 465 paces below spec. 25, pacing down road.

Locality λ.

Begins where the Chester valley R. R. crosses Paoli road close to Paoli road station and extends south along road, Tredyffrin township, Chester Co.

8029, (1,) Light gray compact limestone, 80′ S. of Chester valley R. R., exposure in road.
8030, (2,) Gray marble, 50′ below spec. 1, exposure at edge of road.
8031, (3,) Dark gray marble, 120′ do. in road in front of Nathan Griffith's house.

8032, (4,) Dark gray marble, 225′ below spec. 1, exposure in hill back of Nathan Griffith's barn.
8033, (5,) Gray marble, 233′ do. from same hillside.
8034, (6,) White marble, 258′ do. do.
8035, (7,) Compact white limestone, 267′ do. do.
8036, (8,) Compact gray limestone, 287′ do. do.
8037, (9,) do. 294′ do. do.
8038, (10,) Dark hydro-mica schist with iron oxide strains, 309′ do. do.
8039, (11,) do. with quartz, 318′ do. do.
8040, (12,) Dark compact bastard marble, 513′ do. at edge of road and 70 yards south of old lime kiln.
8041, (13,) Dark bastard marble with pyrite, 558′ do. road exposure.
8042, (14,) do. 570′ do. do.
8043, (15,) do. 580′ do. do.
8044, (16,) do. 588′ do. do.
8045, (17,) do. 608′ do. do.
8046, (18,) do. 613′ do. do.
8047, (19,) do. 667′ do. do.
8048, (20,) do. 673′ do. do.
8049, (21,) do. 685′ do. do.
8050, (22,) do. 715′ do. do.
8051, (23,) do. 775′ do. do.
8052, (24,) do. 789′ do. do.
8053, (25,) do. 811′ do. do.
8054, (27,) do. 888′ do. do.
8055, (28,) Greenish-gray slates, slightly discolored by iron oxide stains, 550 yards, below spec. 27, measuring direct down road, exposure at road side near entrance to residence of Clement Biddle, Esq.

Locality 8.

Begins just south of the Chester valley R. R. a few hundred yards east of Cedar Hollow Station, on property of M. D. Cornog and extends south taking in exposures in road running south from Cedar Hollow station, Tredyffrin township, Chester Co.

8056, (1,) Light gray compact limestone, from north end of old limestone quarry on property of M. D. Cornog, 90 yards S. of Chester valley R. R.
8057, (2,) White marble, 32′ below spec. 1, from same quarry.
8058, (3,) Compact dark limestone with thin seams of marble, 38′ do.
8059, (4,) White and gray marble, 42′ do. from same quarry.
8060, (5,) Greenish hydro-mica schist, 44′ do. from south end of same quarry.
8061, (6,) Bastard marble with pyrite and white calcite, 154′ do. in field of M. D. Cornog.
8062, (7,) do. 163′ do. same field.
8063, (8,) Bastard marble with pyrite, 180′ do. do.
8064, (9,) do. 193′ do. do.
8065, (10,) do. 378′ do. do.
8066, (11,) do. 388′ do. do.
8067, (12,) do. with small stalictitic formations on the under surface, 403′ do. do.
8068, (13,) Bastard marble with pyrite, 453′ do. do.
8069, (14,) do. 491′ do. do.
8070, (15,) do. 517′ do. do.
8071, (16,) do. 529′ do. do.
8072, (17,) do. 541′ do. do.
8073, (18,) do. somewhat honey-combed, 234′ below spec. 17, exposure in road 3–400 yards west of above exposures, 80 paces south of dwelling house on east side of road.
8074, (19,) do. 254′ do. exposure in road.
8075, (20,) Bastard marble and pyrite somewhat weathered, 273′ do. do.
8076, (21,) Hydro-mica schist with pyrite, 360′ do. road exposure.
8077, (22,) Greenish hydro-mica schist with iron oxide seams, 340 paces below spec. 21, pacing south along road, exposures in bank on east side of road and directly in front of residence of Phineas Lewis.

CHESTER CREEK SECTION—8078 to 8238. Section I.

Locality 314.

Begins at limestones north of Whiteland Station, P. R. R., and extends south along road to serpentines about 1¼ miles north of West Chester.

8078, (1,) Bastard marble with pyrite, 30′ south from Chester Valley R. R., on road to Whiteland Station.
8079, (2,) do. 6′ below spec. 1 at road side.
8080, (3,) do. 16′ do. do.
8081, (4,) do. 22′ do. do.
8082, (5,) Bastard marble, (nearly marble,) 30′ do. at road side.
8083, (6,) Bastard marble with pyrite, 38′ do. do.
8084, (7,) do. 45′ do. do.
8085, (8,) do. 53′ do. do.
8086, (9,) do. 62′ do. do.
8087, (10,) do. 69′ do. do.
8088, (11,) do. 75′ do. do.
8089, (12,) do. 83′ do. do.
8090, (13,) do. 89′ do. do.
8091, (14,) do. 96′ do. do.
8092, (15,) do. 114′ do. do.
8093, (16,) do. 125′ do. do.
8094, (17,) do. with white calcite, 152′ do. do. just opposite entrance to residence of Richard Ashbridge, Esq.
8095, (18,) Bastard marble with pyrite, 282 do. from quarry in field on east side of road, and about 100 yards back from road.
8096, (19,) do. 297′ do. from same quarry.
8097, (20,) do. 332′ do. exposure in field on west side of road, property of R. Ashbridge.

8098, (21,) Gray and white marble, 345′ below spec. 1, exposure at road side.
3099, (22,) Gray bastard marble, 356′ do. at road side.
8100, (23,) Light gray marble, bastard with little pyrite, 365′ do. at road side.
8101, (24,) Gray limestone, with thin seams of white marble, 160 paces below spec. 23, pacing at right angles to strike, from old quarry in field on east side of road.
8102, (25,) Bastard marble with pyrite, 25′ below spec. 24, from same quarry.
8103, (26,) Light gray marble, 50′ do. from same quarry.
8104, (27,) Decomposed hydro-mica schist, 635 paces below No. 26, in excavation for abutment of new R. R. bridge which crosses road at Whiteland Station.
8105, (28,) Partially decomposing hydro-mica schist, with iron oxide strains, 100 paces below spec. 27, where old track of P. R. R. crosses road.
8106, (29,) Chloritic schist, with milky quartz, exposures at cross roads where road leading from Whiteland Sta. intersects the "Boot road."
8107, (30,) Greenish chloritic schist, from exposures where "Boot road" crosses West Chester and Malvern branch of P. R. R., close to Kirkland Station.
8108, (31,) Gray hydro-mica schist from R. R. cut about 300 yards south from Patton Station on West Chester and Malvern branch P. R. R.

Locality 314.

Begins on property of Mr. Taylor on east side of High Street road about 1 mile north of West Chester, extends south along High Street road to first road running east and west, thence along the latter road to the first road running parallel with High Street road, thence down latter road to where it crosses W. C. & M. branch P. R. R., thence down R. R. to W. C. & P. R. R. depot.

8133, (6,) Gray hornblendic gneiss, in cut, 378 paces, direct along R. R., below spec. 5.

8134, (7,) Dark compact syenitic granite with garnet, 39′ below spec. 6 in cut.

8135, (8,) Grayish gneiss, with small garnets decomposing, 120′ below spec. 7, in cut.

8136, (9,) Grayish gneiss, 410′ below spec. 7, from south end of R. R. cut.

8137, (10,) Grayish gneiss, 180 paces down R. R. below spec. 9, in bank on east side of track.

8138, (11,) Grayish gneiss, 95′ below spec. 10, from same exposure.

8139, (11,) Light gray gneiss, from same place as 8138.

8140, (12,) Dark hornblendic gneiss, 150′ below spec. 10, from south end of same exposure.

8141, (13,) Semi-porphyritic gneiss with hornblende, 870 paces below spec. 12, pacing down R. R. to line of strike. In field on west side and 150 yards from R. R., on property of Mr. Jones.

8142, (14,) Thin bedded porphyritic gneiss with garnets decomposing, 335 paces below spec. 13, from north end of cut just above Street road Station.

8143, (15,) Thin bedded porphyritic gneiss, 130′ below spec. 14, from south end of cut, and 10′ above Street road bridge over R. R.

Locality 316a.

Railroad cut ½ mile below Street road Station.

8144, (1,) Light fine-grained gneiss, semi-porphyritic from north end of R. R. cut.

Locality 316b.

Exposure about 200 yards above Cheyney's Station on west side of W. C. & P. R. R. in field of George Cheyney, Esq.

8145, (1,) Gray gneiss, from above named exposure.

Locality 302.

Commences at a point on West Chester and Phila. R. R. about ½ mile east from Cheyney Station and extends to Glen Mills Station in Thornbury township.

8146, (1,) Granitic gneiss, from north end of cut about 1½ miles below Cheyney Station where first road below station crosses R. R.

8147, (2,) Dark hornblendic granite with small garnets, 160′ below spec. 1, from cut.

8148, (3,) Granitic gneiss with garnets, 221′ do. from south end of same cut.

8149, (4,) Syenitic gneiss with garnets, 648 paces, down R. R. below spec. 3, exposures close to road which crosses R. R. and then crosses creek by a bridge.

8150, (5,) Gray gneiss, 170′ below spec. 4, in cut.

8151, (6,) do. with garnets decomposing, 226 paces below spec. 5, in cut.

8152, (7,) Granitic gneiss, 47′ below spec. 6, from cut.

8153, (8,) Heavy dark syenitic gneiss, 72′ do. in cut under house.

8154, (9,) Heavy dark garnetiferous granitic gneiss, 112′ do. in cut at bend of R. R.

8155, (10,) Gray garnetiferous gneiss, 148′ do. in cut.

8156, (11,) Gray gneiss, 338′ do. at end of cut and close to wagon road which crosses R. R.

8157, (12,) Heavy dark garnetiferous granitic gneiss, 162 paces below spec. 11, pacing down R. R. from bed of creek, on east side of R. R.

8158, (13,) do. 190 paces below spec. 12, pacing down R. R. from north end of cut.

8159, (14,) Garnetiferous syenitic gneiss, 50′ below spec. 13, from south end of cut.

8160, (15,) Heavy dark gray gneiss, 405 paces below spec. 14, pacing down R. R. from north end of cut.

8161, (16,) Heavy gray garnetiferous gneiss, 42′ below spec. 15, from south end of cut.

8109, (1,) Serpentine, from property of Mr. Taylor on east side of High Street road on hillside north of dam.

8110, (2,) do. 460′ below spec. 1, from quarry on same property on south side of dam.

8111, (3,) do. 160 paces below spec. 2, pacing at right angles to the strike, exposure in field on E. side of road.

8112, (4,) Hornblendic gneiss (decomposing) 208 paces below spec. 3, pacing at right angles to the strike, excavation in field 300–350 yards east of High Street road, 50 yards north of road running E. and W.

8113, (5,) Hornblendic gneiss with garnets, feldspar decomposing, 97 paces below spec. 4, pacing at right angles to the strike, exposure in road running east and west and 50 yards east from High Street road.

8114, (6,) White gneiss with feldspar decomposing, 270 paces, at right angles to strike, below spec. 5, exposure in first road to the east, running parallel with High Street road.

8115, (7,) do. 122 paces below spec. 6, at right angles to the strike, exposure on same road.

8116, (8,) Decomposing brown gneiss with garnets, 84 paces, at right angles to the strike, below spec. 7, exposure on cross road, 75 yards west from above road.

8117, (9,) Dark hornblendic gneiss, 550 paces, at right angles to the strike, below spec. 8, exposure in W. C. & M. branch P. R. R. cut ¼ mile above W. C. & P. R. R. depot.

8118, (10,) Light gneiss with brown iron oxide (decomposing) stains, 80′ below spec. 9, in same cut.

8119, (11,) do. 320′ below spec. 10, measuring at right angles to strike in R. R. cut.

8120, (12,) Hornblendic gneiss, 125′ below spec. 11 from cut, 80 paces above center of street in front of W. C. & P. R. R. depot.

Locality 315.

Begins with exposures about 1¼ miles south of West Chester, on the line of the West Chester and Phila. R. R., and extends south to Hemphill Station.

8121, (1,) Dark syenitic granite, close to south side of bridge crossing W. C. and P. R. R., 1¼ miles below West Chester.

8122, (2,) do. 120′ below spec. 1, on west side of R. R.

8123, (3,) Light colored granite (nearly granulite) with little magnetite, 450 paces below spec. 2, pacing direct along R. R. exposure on south side of road crossing R. R. and 50 yards east from latter.

8124, (4,) Gray hornblendic granite, 200 paces, at right angles to the strike, below spec. 3, exposure in R. R. cut.

8125, (5,) Dark hornblendic granite with garnet, 90′ below spec. 4, from same cut.

8126, (6,) Light gray hornblendic gneiss, 530 paces below spec. 5, pacing direct along R. R. or nearly at right angles to the strike from R. R. cut just above Hemphill station.

8127, (7,) do. 190′ below spec. 6, from same cut, 100 paces north of Hemphill Station.

Locality 316.

Extends from Hemphill Station on West Chester and Phila. R. R. to Street Road Station on same road, Westtown twp., Chester Co.

8128, (1,) Gray gneiss, from north end of R. R. cut, 430 paces below Hemphill Station.

8129, (2,) Dark hornblendic gneiss, 125′ below spec. 1, from south end of cut.

8130, (3,) Gray and brownish thin bedded gneiss, 255′ below spec. 2, measuring direct along R. R. at north end of cut, close to south end of R. R. bridge over stream.

8131, (4,) Light colored gneiss with pink feldspar, 68′ below spec. 3, in same cut.

8132, (5,) Light gray gneiss, 203′ do. at south end of cut.

8133, (6,) Gray hornblendic gneiss, in cut, 378 paces, direct along R. R., below spec. 5.

8134, (7,) Dark compact syenitic granite with garnet, 39′ below spec. 6 in cut.

8135, (8,) Grayish gneiss, with small garnets decomposing, 120′ below spec. 7, in cut.

8136, (9,) Grayish gneiss, 410′ below spec. 7, from south end of R. R. cut.

8137, (10,) Grayish gneiss, 180 paces down R. R. below spec. 9, in bank on east side of track.

8138, (11,) Grayish gneiss, 95′ below spec. 10, from same exposure.

8139, (11,) Light gray gneiss, from same place as 8138.

8140, (12,) Dark hornblendic gneiss, 150′ below spec. 10, from south end of same exposure.

8141, (13,) Semi-porphyritic gneiss with hornblende, 870 paces below spec. 12, pacing down R. R. to line of strike. In field on west side and 150 yards from R. R., on property of Mr. Jones.

8142, (14,) Thin bedded porphyritic gneiss with garnets decomposing, 335 paces below spec. 13, from north end of cut just above Street road Station.

8143, (15,) Thin bedded porphyritic gneiss, 130′ below spec. 14, from south end of cut, and 10′ above Street road bridge over R. R.

Locality 316a.

Railroad cut ½ mile below Street road Station.

8144, (1,) Light fine-grained gneiss, semi-porphyritic from north end of R. R. cut.

Locality 316b.

Exposure about 200 yards above Cheyney's Station on west side of W. C. & P. R. R. in field of George Cheyney, Esq.

8145, (1,) Gray gneiss, from above named exposure.

Locality 302.

Commences at a point on West Chester and Phila. R. R. about ½ mile east from Cheyney Station and extends to Glen Mills Station in Thornbury township.

8146, (1,) Granitic gneiss, from north end of cut about 1½ miles below Cheyney Station where first road below station crosses R. R.

8147, (2,) Dark hornblendic granite with small garnets, 160′ below spec. 1, from cut.

8148, (3,) Granitic gneiss with garnets, 221′ do. from south end of same cut.

8149, (4,) Syenitic gneiss with garnets, 648 paces, down R. R. below spec. 3, exposures close to road which crosses R. R. and then crosses creek by a bridge.

8150, (5,) Gray gneiss, 170′ below spec. 4, in cut.

8151, (6,) do. with garnets decomposing, 226 paces below spec. 5, in cut.

8152, (7,) Granitic gneiss, 47′ below spec. 6, from cut.

8153, (8,) Heavy dark syenitic gneiss, 72′ do. in cut under house.

8154, (9,) Heavy dark garnetiferous granitic gneiss, 112′ do. in cut at bend of R. R.

8155, (10,) Gray garnetiferous gneiss, 148′ do. in cut.

8156, (11,) Gray gneiss, 338′ do. at end of cut and close to wagon road which crosses R. R.

8157, (12,) Heavy dark garnetiferous granitic gneiss, 162 paces below spec. 11, pacing down R. R. from bed of creek, on east side of R. R.

8158, (13,) do. 190 paces below spec. 12, pacing down R. R. from north end of cut.

8159, (14,) Garnetiferous syenitic gneiss, 50′ below spec. 13, from south end of cut.

8160, (15,) Heavy dark gray gneiss, 405 paces below spec. 14, pacing down R. R. from north end of cut.

8161, (16,) Heavy gray garnetiferous gneiss, 42′ below spec. 15, from south end of cut.

8162, (17,) Heavy gray gneiss, 280′ below spec. 16, measuring at right angles to the strike, exposure in field on west side of R. R. and creek, about 150 yards above Glen Mills Station.

Locality 303.

Extends from Glen Mills Station to Darlington Station, West Chester and Phila. R. R., Middletown township, Delaware Co.

8163, (1,) Garnetiferous granitic gneiss, exposure at Glenn Mills Station.

8164, (2,) Brownish gray gneiss, 170′ below spec. 1, exposure on east side of creek and R. R., on property of Mr. Wilcox, close to R. R. bridge.

8165, (3,) Garnetiferous granitic gneiss, 150′ below spec. 2, on same property.

8166, (4,) do. 250′ do. at north end of first cut below Glen Mills Station.

8167, (5,) Dark granitic gneiss, 283′ do. from same cut.

8168, (6,) do. 440′ do. in same cut.

8169, (7,) Garnetiferous gneiss, 625′ do. from hillside on east side of track and creek, property of Mr. Wilcox.

8170, (8,) do. 765′ do. from old quarry on east side of R. R. and creek, on property of Jas. M. Wilcox.

8171, (9,) Serpentine, 100 yards below spec. 8, measuring at right angles to the strike, exposure in woods 200 yards east of R. R., on property of Jas. M. Wilcox.

8172, (10,) Dark hornblendic gneiss, 160 paces at right angles to the strike, below spec. 9, in field on west side of creek and R. R.

8173, (11,) do. 125 paces at right angles to the strike, below spec. 10, from north end of R. R. cut, on property of J. Darlington.

8174, (12,) do. 190′ below spec. 11, from south end of cut.

8175, (13,) Gray hornblendic gneiss, 234′ below spec. 12, measuring at right angles to the strike, exposure in bank on east side of R. R.

8176, (14,) Gray garnetiferous gneiss with hornblende, 85′ below spec. 13, in bank on east side of R. R.

8177, (15,) Decomposing gray garnetiferous gneiss, 195 paces below spec. 14, measuring direct along R. R. from north end of cut.

8178, (16,) Gray hornblendic gneiss with garnets, 85′ below spec. 15, from south end of same cut, just below house of J. Darlington.

8179, (17,) Gray hornblendic gneiss, 160 paces, measured direct down R. R., below spec. 16, in field on east side of R. R. on property of J. Darlington.

8180, (18,) Gray garnetiferous gneiss, 128 paces, measured direct along R. R., below spec. 17, at edge of creek on west side of R. R.

8181, (19,) Compact dark hornblendic gneiss, 190′ below spec. 18, in cut.

8182, (20,) do. 398′ below spec. 19, in south end of cut.

8183, (21,) Gray hornblendic gneiss, 250 paces, pacing direct down R. R. to line of strike, below spec. 20, on hillside on east side of R. R. property of J. Darlington.

8184, (22,) Dark hornblendic gneiss, 130′ below spec. 21, at north end of R. R. cut, just above Darlington Station.

8185, (23,) do. with garnets, 265′ below spec. 21, in cut.

8186, (24,) Compact dark horblendic gneiss, 485′ below spec. 21, at south end of cut and 25′ north of Darlington Station.

Locality 304.

Begins at Darlington Station and extends to Lenni junction, West Chester and Philadelphia R. R., Middletown Twp., Delaware Co.

8187, (1,) Dark gray hornblendic gneiss, 280 paces below Darlington Station pacing down R. R. from cut on property of J. Darlington.

8188, (2,) do. 45′ below spec. 1, from south end of cut.

8189, (3,) Brownish-gray garnetiferous gneiss, 115′ below spec. 2, exposure on east side of R. R. on property of Mr. Darlington.

8190, (4,) Gray gneiss, 250′ below spec. 3, measuring at right angles to the strike, on east side of R. R. near small stream on property of J. Pennell.

8191, (5,) Gray hornblendic gneiss, 150′ below spec. 4, measuring at right angles to the strike close to house occupied by negro family on property of J. Pennel.

8192, (6,) Gray gneiss with garnets, 95′ below spec. 5, on same property.

8193, (7,) Dark hornblendic gneiss, 145′ do. at north end of R. R. cut just above Pennellton Station.

8194, (8,) Gray hornblendic gneiss, 215′ do. do.

8195, (9,) do. 385′ do. from south end of cut, 30′ north of Pennellton Station.

8196, (10,) Heavy gray gneiss, (hornblendic?) 120 paces below spec. 9, pacing direct along R. R. to line of strike of the specimen from cut on the Phila. and Baltimore Central R. R. on south side of Chester creek.

8197. (11,) Gray gneiss, 80′ below spec. 10, from south end of P. & B. C. R. R. cut close to Baltimore Central Junction Station.

8198, (12,) Dark hornblendic gneiss, 330′ below spec. 11, measuring direct along track, in railroad cut close to south end of bridge just below Balt. Central Junction.

8199, (13,) Gray gneiss, (hornblendic,) 410′, measured direct along R. R., below spec. 12, in cut.

8200, (14,) Gray gneiss, in cut, 590′, measured as before, below spec. 13.

8201, (15,) do. 350′ measured as before, below spec. 14.

8202, (16,) Gray hornblendic gneiss, 505′, measured as before, below spec. 15, exposure in bank on east side of R. R., opposite ice houses.

8203, (17,) do. in cut, 680′, measured as before, below spec. 16.

8204, (18,) do. 675′ measured as before, below spec. 17, exposure in bank on east side of R. R., and 20 yards north of Lenni Station.

Locality 305.

Begins with serpentine exposures ⅛ of a mile east from Lenni Junction, and extends to Rockdale Station, on the Chester Creek R. R., in Middletown and Aston townships, Delaware Co.

8205, (1,) Serpentine with chromic iron, 1350′ east from Lenni Station, measuring direct along W. C. and P. R. R. track, exposure close to R. R. bridge over road.

8206, (2,) Light gray gneiss with hornblende, 260′ below spec. 1, measuring direct along Chester Creek R. R. on east of R. R., opposite Parkmount Woolen Factory.

8207, (3,) Dark hornblendic gneiss, from cut, 1680′ below spec. 2, measuring direct down Chester Creek R. R. track.

Locality 306.

Begins at Rockdale Station, on Chester creek or Phila. and Baltimore Central R. R., and extends to Knowlton Station, Middletown Twp., Delaware Co.

8208, (1,) Hornblendic gneiss, from north end of R. R. cut, 130′ below the first bridge below Rockdale Station.

8209, (2,) Garnetiferous micaceous gneiss, 745′ below spec. 1, measuring direct down R. R. from cut close to south end of bridge crossing stream.

8210, (3,) Micaceous gneiss, 770′ below spec. 2, measuring direct down R. R., exposure in cut.

8211, (4,) do. 835′ below spec. 3, measuring direct down R. R. from first cut above Presbyterian Ford Station, on property of Jos. Griswold.

8212, (5,) Coarse micaceous gneiss, 1665′, measuring direct along R. R., from cut very short distance below Presbyterian Ford Station, on property of Wm. Turner.

8213, (6,) Garnetiferous micaceous gneiss, decomposing, 475′ below spec. 5, measuring direct along R. R., from cut on property of Wm. Turner.

8214, (7,) Coarse garnetiferous gneiss, 750′ below spec. 6, measuring direct down R. R., from cut on same property.

8215, (8,) Slaty gray gneiss with garnets, 265′ below spec. 7, measuring direct down R. R., at end of cut, on property of Chas. Burnley.

8216, (9,) Slaty gray gneiss, 1070′ below spec. 8, measuring direct (east) on R. R., exposure in bank on east side of R. R., close to the entrance to Starch Factory owned by Mr. Burnett.

8217, (10,) Brownish-gray garnetiferous gneiss, 325′ below spec. 9, measuring direct down R. R., in cut.

8218, (11,) Decomposing garnetiferous gneiss, 770′ below spec. 10, measuring direct down R. R., from cut.

8219, (12,) Garnetiferous gneiss with a little pyrite stained by iron oxide, from cut 300′ below spec. 11, measuring as before.

8220, (13,) Garnetiferous gneiss stained with iron oxide, 415′ below spec. 12, measuring as before, from cut just opposite Knowlton Station.

Locality 307.

Begins at Knowlton Station, P. & B. C. R. R., and extends to Bridgewater Station in Middletown and Aston townships, Delaware Co.

8221, (1,) Garnetiferous gneiss stained with iron oxide, 500′ below Knowlton Station, measured down R. R. from small R. R. cut on property of Richard Berry.

8222, (2,) do. 710′ below spec. 1, measuring as before, from north end of cut on south west side of creek, close to southwest end of R. R. bridge over creek, on property of Elwood Tyson.

8223, (3,) Gneiss stained by decomposition, 625′ below spec. 2, measured as before, in cut.

8224, (4,) Garnetiferous gneiss 530′ below spec. 3, measuring as before, from cut on property of Mrs. Neild.

8225, (5,) Fine-grained gray slaty gneiss, 775′ below spec. 4, measuring as before, from R. R. cut.

8226, (6,) Gray gneiss with decomposing garnets, 450′ below spec. 5, measuring as before, from cut at bend in R. R., about 400′ above Morgan's Station.

8227, (7,) Gray gneiss with some garnets, 1350′ below spec. 6, measuring as before, from north end of first cut below Morgan's Station on property of Abram P. Morgan.

8228, (8,) Gray gneiss with garnet, 650′ below spec. 7, measuring as before, from cut, Abram P. Morgan's property.

8229, (9,) Hornblendic gneiss with garnets, 1465′ below spec. 8, measuring as before, from excavation on west side of R. R. on property of the Bridgewater Paper Co. and between workmen's houses and paper-mill, 325′ above Bridgewater Station.

Locality 308.

Begins at Bridgewater Station and extends to Upland Station, P. & B. C. R. R.

8230, (1,) Gray gneiss with decomposing garnets, 240′ below Bridgewater Station, measuring along and on west side of R. R. property of Lewis Bergdoll.

8231, (2,) Dark hornblendic gneiss, 25′ below spec. 1, in bank on west side of R. R. on same property.

8232, (3,) Slaty gneiss with decomposing garnets, 95′ do. in bank on west side of R. R., 400 paces below Bridgewater Station, property of L. Bergdoll.

8233, (4,) Gneiss, 1560′ below spec. No. 3, measuring along R. R. from line of strike of spec. 3, exposure 50′ north of Upland Station on property of Jno. Flower.

Locality 309.

Begins at Upland Station and extends down Chester creek to the Delaware river.

8234, (1,) Dark gray gneiss, from quarry in woods on east side of creek, ¼ mile east of Upland Station, on property of S. A. Crozer.

8235, (2,) Gray gneiss, (decomposing,) 130 paces below spec. 1, pacing at right angles to the strike, on east side of creek on same property.

8236, (3,) Dark gray gneiss, 250 yards below spec. 2, measuring at right angles to the strike, from quarry on west side of creek on property of Walter Lyttle.

8237, (4,) Grayish gneiss, 275′ yards, below spec. 3, measuring as before exposure on west side of creek on Walter Lyttle's property.

8238, (5,) do. somewhat decomposed, 100 yards, below spec. 4, measuring as before, in woods on west side of creek, in old excavation on property of J. Flower, about 200 yards southeast from Upland Station.

8239 to 8291—BRANDYWINE CREEK SECTION Section J.

Locality 317.

Limestone quarry, near the ticket office of the Penna. R. R. at Downingtown Station, East Caln township, Chester Co.

8239, (1,) Compact gray limestone from north end of quarry.

8240, (2,) Crystalline limestone and hydro-mica, from field just south of quarry, 120 yards south of spec. No. 1.

8241, (3,) Chloritic schist with quartz, on road leading from Downingtown to West Chester, on township line between East Caln and West Bradford townships.

Locality 318.

Exposures of slaty rock or schist, at roadside in West Bradford township, below Gibson's Fording bridge.

8242, (1,) Hydro-mica schist with garnets, on west side of road and Brandywine creek, on property of Jerh. Keeley.

Locality 319.

Extends from Sugar's bridge to the next road crossing creek at Joseph Hiddleson's blacksmith shop, East and West Bradford Twps.

8242*a*, (1,) Hydro-mica schist, on east side of creek at roadside several hundred yards east from Sugar's bridge, close to barn of Jos. L. Hiddleson.

8243, (2,) Gray hydro-mica schist, on the same road about 100 yards west from where it crosses Valley creek.

8244, (3,) Thin bedded semi-porphyritic gneiss, with feldspar decomposing, exposure on same road, in bank below house of Benj. D. Johnson.

8245, (4,) Garnetiferous hydro-mica schist, exposure in road leading to Copeville, about 30′ below road leading to West Chester.

8246, (5,) Dark hornblendic gneiss, exposure in bank of same road, just north of H. D. Ingram's grist and saw-mill.

Locality 320.

Begins at limestone, on Edge T. Cope's place, and extends to exposure 150 yards below the bridge at Copeville, on west side of creek, West Bradford township, Chester Co.

8247, (1,) Light gray crystalline limestone with brown mica, from old limestone quarry at edge of creek, (west side,) on the property of E. T. Cope.

8248, (2,) Coarse garnetiferous mica schist, 15′ below spec. 1, at south edge of the same quarry.

8249, (3,) Gray garnetiferous mica schist, exposure at road side, close to W. end of bridge crossing the creek at Copeville.

8250, (4,) Dark gray hornblendic gneiss, from bluff on west side of creek 150–200 yards below Copeville bridge.

Locality 321.

Exposures at road side, below Wm. Bower's Paper Mill, on the east side of the east branch of Brandywine creek, East Bradford township; also exposures between McConkey's bridge and the next bridge crossing creek below, and on road leading to Lenape Station on Wilmington and Reading R. R., and also in cut at Lenape Station, Pocopson Twp.

8251, (1,) Dark gray granitic gneiss, exposure in road 60 yards below Wm. Bower's Paper Mill.

8252, (2,) do. exposure on hillside, on east side of road, ½ mile below McConkey's bridge on property of Wm. Little.

8253, (3,) Heavy granitic gneiss with garnets, from road bank, close to east end of first bridge crossing creek below McConkey's and near confluence of the two branches of Brandywine creek.

8254, (4,) Heavy granitic gneiss, exposure on road on east side of creek, on property of Wm. Little.

8255, (5,) Heavy dark gray gneiss, exposure at Lenape or Sagarsville Station on Wilmington and Reading R. R., on west side of Brandywine creek, in Pocopson Twp.

Locality 322.

Exposures in Birmingham township, on road on east side of creek, between Lenape and Painters's bridge, also exposures on both sides of the creek between Painter's bridge and Brinton's bridge.

8256, (1,) Dark hornblendic gneiss, from exposure at road side, on east side of creek in Birmingham township, ⅛ mile below Lenape P. O.

8257, (2,) Gray gneiss with small garnets, 20′ below spec. 1, from same exposure.

8258, (3,) Gray schist with some garnets, about 400 paces, down road, below spec. 2, exposure at edge of road.

8259, (4,) do. semi-porphyritic, from quarry at road side, close to the east bank of Brandywine creek, about 250 paces above Painter's bridge.

8260, (5,) Decomposing porphyritic, garnetiferous schist, in Wilmington and Reading R. R. cut, ¼ mile below Pocopson Station, Pennsbury township.

8261, (6,) Coarse gray gneiss, from exposures at road side on east side of creek, about ½ mile below Painters bridge, Birmingham Twp.

8262, (7,) Compact gray schist, from road side on east side of creek, about ⅜ mile below Painter's bridge.

8263, (8,) do. somewhat porphyritic, 60′ below spec. 7, from same exposure.

Locality 323.

In Pennsbury Twp., in the neighborhood of Brinton's bridge, numerous exposures.

8264, (1,) Dark hornblendic gneiss, from exposures in Wilmington and Reading R. R. cut, and in road running close by it, about 100 yards above residence of Wm. Burnett.

8265, (2,) Brownish gneiss, exposure at edge of road, on west side of R. R. and creek, 100 yards above Brinton's bridge.

8266, (3,) White crystalline limestone with brown mica, 75′ below spec. 2, from quarry close to the west end of Brinton's bridge.

8267, (4,) Compact calciferous schist, 77′ below spec. 2, from the same quarry.

8268, (5,) Light colored thin bedded gneiss, 127′ below spec. 2, at south end of quarry.

8269, (6,) Gray slaty gneiss with many small garnets, 131′ below spec. 2, exposure in road running along R. R.

8270, (7,) Thin bedded brownish gneiss, with wavy structure, 180′ below spec. 6, measuring down R. R. from bank on west side of R. R.

8271, (8,) Brownish gneiss, 600′ below spec. 7, measuring down R. R. exposure in bank.

8272, (9,) Light gray gneiss, from exposure at road side on east side of creek, just north of house.

8273, (10,) Syenitic gneiss, from exposure at road side on east side of creek about 200 yards south of Sellers Hoffman's house.

Locality 324.

Extends from R. R. cut, ¼ mile above Chadd's Ford to where the Phila. and Baltimore Central R. R. crosses Wilmington and Northern R. R., Pennsbury township.

8274, (1,) Light colored gneiss, from north end of above named R. R. cut.

8275, (2,) Coarse gneiss, feldspar predominating, 50′ below spec. 1, from the same cut.

8276, (3,) Dark gray hornblendic gneiss, 72′ below spec. 1, from south end of cut.

8277, (4,) Heavy dark hornblendic gneiss, 200 yards down R. R. below spec. 3, from north end of first cut above Chadd's Ford on Wilmington and Northern R. R.

8278, (5,) Gray hornblendic gneiss, 110′ below spec. 4, from south end of cut.

8279, (6,) Thin bedded gray gneiss, from exposure on west side of R. R. and wagon road, just opposite the bridge over which the State road crosses Brandwine creek at Chadd's Ford.

Locality 325.

Extends from where Phila. and Baltimore Central R. R. crosses the creek at Chadd's Ford, to where the Wilmington and West Chester turnpike crosses the creek at Pyle's bridge, Pennsbury township.

8280, (1,) Garnetiferous schist, with iron oxide stains, from north end of first cut below crossing of P. and B. C. R. R., and W. and R. R. R., on the latter road.

8281, (2,) Schist, stained with iron oxide through decomposition, about 250 yards below spec. 1, from R. R. cut on the property of Jos. Miller.

8282, (3,) Heavy gray gneiss with garnets, about ½ mile below Chadd's Ford, and in third R. R. cut.

8283, (4,) Close grained, dark syenitic gneiss, 30′ below spec. 3, from the same cut.

8284, (5,) Decomposing gray gneiss, with pink feldspar and garnets, from S. end of above named cut, and 50 yards measuring direct down R. R., below spec. 4.

8285, (6,)Heavy gray gneiss, with small garnets, from R. R. cut, 100 yards below Brookfield Station.

8286, (7,) Heavy dark syenitic gneiss, from cut 70 yards above Pyle's bridge.

8287, (8,) Gray and brownish garnetiferous gneiss, in bank on west side of R. R. and wagon road, just at west end of Pyle's bridge.

Locality 326.

Extends from Pyle's bridge to Harvey's or Delaware State line.

8288, (1,) Thin bedded gray gneiss with garnets, about 250 yards below Pyle's bridge, in cut.

8289, (2,) Thin bedded gray gneiss, 150′ below spec. 1, from same cut.

8290, (3,) do. 235′ below spec. 1, from south end of R. R. cut.

8291, (4,) Grayish gneiss, from extensive exposures of rock on line dividing the States of Pennsylvania and Delaware, and on the Wilm. and Reading R. R.

8292 to 8391—A. E. LEHMAN—1879—In Franklin and Adams Co.

8292, Epidotic copper rock, from John Reed's old opening, near old furnace road, 4 miles west from Fairfield, Adams Co.

8293, Slate, from near Schroader's, 4 miles S. W. from Fairfield.

8294, Fine-grained quartzose rock, near Fountain Dale, 4½ miles southwest from Fairfield.

8295, Lilac colored clay slate, from near surface in Bechtel's shaft, near Russel's house, 3 miles northwest from Fairfield.

8296, Epidote, Russel's copper mine, 3 miles northwest from Fairfield.

8297, Dark green chloritic schist, McDevitt's mill, 4 miles southwest from Fairfield.

8298, Fine-grained epidotic rock, east of Rupp's mill, 2 miles northwest from Fairfield.

8299, Green epidotic schist, (?) near Tom's creek, 4 miles N. W. from Fairfield.

8300, Fine-grained epidote schist, (?) northeast from "Rupp's Hill," 3 miles N. W. from Fairfield.
8301, Talcose schist, (?) near Russel's house, in road, 4 miles N. W. from Fairfield.
8302, Quartz conglomerate, near head of Middle creek, 5½ miles N. W. from Fairfield.
8303, (?) west of Snivley's copper mines, 5 miles N. W. from Fairfield.
8304, Gray blue quartzote slate, near Adam Tressler's barn, 6 miles S. W. from Fairfield.
8305, Orthofelsite, southwest from Fountain Dale, 5 miles S. W. from Fairfield.
8306, Fine-grained quartzite, Paxton Riley's farm, 3½ miles S. W. from Fairfield.
8307, Chloritic rock, (?) in Tape Worm R. R. cut, 2 miles west from Fairfield.
8308, Lilac colored clay slate, from bottom of Bechtel's shaft on Russel's property, 3 miles N. W. from Fairfield.
8309, Fine-grained epidote, McDevitt's mills, 4 miles S. W. from Fairfield, on Friend's creek.
8310, Epidotic rock, (?), in Tape Worm R. R. cut, 2 miles N. W. from Fairfield.
8311, Epidotic rock, at Russel's copper mine, 4 miles do.
8312, Epidote rock, Snivley's copper mine 4 miles do.
8313, Greenstone, north of Tom's creek, 3½ miles do.
8314, Epidote, with peculiar weather markings, Snively's copper mine, 5 miles do.
8315, Near John Watson's house, 4½ miles N. W. from Fairfield and 1 mile west from Russel's copper mine.
8316, Clay slate, near Snivley's copper mine, 3½ miles N. W. from Fairfield.
8317, Epidotic copper rock, from prospecting ditches at Snivley's copper mine.
8318, "Mountain schist," near Adam Tressler's on Friends creek.
8319, Epidote, near Bechtel's shaft on Russel's farm, 3 miles N. W. from Fairfield.
8320, Epidotic schist, (?) north of Tom's creek, 4 miles do.

8321, Epidote and diabase, (?) near Bechtel's shaft, Russel's farm.
8322, " Snivley's copper mines, 4 miles N. W. from Fairfield.
8323, Quartz, near Bechtel's shaft, Russel's farm.
8324, " from Snivley's copper mine, 4 miles N. W. from Fairfield.
8325, Milky quartz, Bechtel's shaft, Russel's farm.
8326, Copper rock, J. N. Snivley's copper mine.
8327, Clay slate, Bechtel's shaft, Russel's farm.
8328, " Snivley's copper mine.
8329, Diabase (?) near Bechtel's shaft, Russel's farm, 3 miles N. W. from Fairfield.
8330, Diabase and quartz, with streaks of fibrous quartz, on hillside south of Snivley's copper mine.
8331, Clay slate, from Kyholtz's shaft, near house on Kyholtz's farm, 4 miles N. W. from Fairfield.
8332, Epidotic schist, on turnpike east of Wash. Beirchoff's, 1 mile east from Monterey, Adams Co.
8333, Orthofelsite, Jack's run, near Shovert's saw-mill, 1½ miles S. E. from Monterey.
8334, Mountain schist, near Fountain Dale, 5 miles east from Monterey.
8335, Quartz conglomerate schist, from top of Haycock, near Wash. Shouer's farm, 2 miles east from Monterey.
8336, " Near John Singer's house, 4 miles N. from Monterey, on Tom's creek.
8337, Green quartzose schist, near heading of tunnel (east) Tape Worm R. R., 3½ miles east from Monterey.
8338, Quartz and copper stone, near Senger's house, 3½ miles N. from Monterey.
8339, Chloritic schist (?) south of Fountain Dale P. O., 3 miles S. E. of Monterey.
8340, Quartz conglomerate schist, from N. E. slope (near foot) of Haycock, near Miney branch, 2 miles east from Monterey.
8341, "Mountain schist," near Fountain Dale, 4 miles east from Monterey, on turnpike.

8342, Near Fountain Dale, P. O., 2 miles east from Monterey.

8343, Copper rock, near Rouser's house, Benchhoop's farm, 1 mile N. E. from Monterey.

8344, Fine-grained quartzose slate, near Fountain Dale P. O., 2 miles east from Monterey.

8345, "Mountain schist," near Fountain Dale, 5 miles east from Monterey.

8346, Near John Senger's house, 4 miles N. from Monterey on Tom's creek.

8347, Epidotic rock, Jack's run, near Shovert's saw-mill, 1½ miles S. E. from Monterey.

8348, Weathered epidote, from tunnel heading Tape Worm R. R., 2 miles east from Monterey.

8349, South of turnpike, ½ mile west from Fountain Dale, Adams Co.

8350, Hydro-mica schist, (?) Jack's run, near Shovert's saw-mill, 1½ miles S. E. from Monterey.

8351, Epidotic schist, east from Fountain Dale, 5½ miles east from Monterey.

8352, Chloritic slate, near John Senger's house, 4 miles N. from Monterey.

8353, Fine-grained green quartzose schist near Fountain Dale, P. O., 2 miles east from Monterey.

8354, East from Fountain Dale, 6 miles east from Monterey, on turnpike.

8355, Quartz conglomerate, north slope of Haycock, near Miney branch, 2 miles east from Monterey.

8356, Epidote with fine quartz pebbles, N. W. slope of Haycock, near Miney branch, ±2 miles east from Monterey.

8357, Quartzose slate, at east foot of Kepner's Ridge, 4½ miles N. E. from Monterey.

8358, Hydro-mica slate (?) southwest from Fountain Dale P. O., 2½ miles east from Monterey.

8359, Asbestus and greenstone, from R. R. cut near Benchhoop's fields, 1 mile N. E. from Clermont, Adams Co.

8360, Coarse grained quartzite, near Clermont house, 1½ miles N. E. from Clermont, top of Pine hill.

8361, Chloritic slate from top of shaft in old copper mine, N. W. from Jos. Bigham's house, 3 miles N. E. from Clermont house.

8362, Epidote, near Pine hill, 2 miles N. E. from Clermont house.

8363, Greenstone and quartz, near Pine hill, 2 miles N. E. from Clermont house.

8364, Clay slate, 1 mile S. E. from Jas. Bigham's, near Middle creek, Adams Co.

8365, Clay slate, 1 mile S. E. from Jas. Bigham's, near Middle creek.

8366, near State line and Adam Tressler's, 5 miles east from Blue Ridge.

8367, Copper rock near State line, 1 mile do.

8368, near State line, 5 miles do.

8369, Chloritic rock near State line, 2 miles do.

8370, near John Watson's barn, 1 mile west from Russel copper mine.

8371, Copper rock and quartz, near do.

8372, Weathered sandy slate, near Buena Vista, 3 miles west from Monterey, Franklin Co.

8373, Fine-grained dark hard banded standstone, near Bailey's Spring, 2 miles N. W. from Monterey, Franklin Co.

8374, Epidote (?) in cut of Tape Worm R. R., ½ mile south of Monterey, Franklin Co.

8375, Quartz conglomerate, S. E. of Buena Vista, Franklin Co.

8376, Finely laminated greenish quartzose slate, near Bailey's run, 2 miles N. W. from Monterey, Franklin Co.

8377, Fine-grained greenish quartzose slate, south of Falls' creek, near Buena Vista, 3 miles S. W. of Monterey, Franklin Co.

8378, Sandy slate, in bed of Red run, near Buena Vista, 2 miles west from Monterey, Franklin Co.

8379, Coarse-grained quartzite or conglomerate, from top of Mt. Misery, north of W. M. R. R., 1 mile east from Pen Mar, Franklin Co.
8380, Blue orthofelsite, ¼ mile S. E. from Clermont, Franklin Co.
8381, Fine grained quartzose slate near Bailey Springs, 2 miles N. W. from Monterey, Franklin Co.
8382, Quartzite with scolithus, near Bailey's run, 2 miles N. W. from Monterey, Franklin Co.
8383, Quartzose schist, from top of Mt. Misery, near (north of) W. M. R. R., 1 mile east from Pen Mar, Franklin Co.
8384, Close grained quartzite, on top of Mt. Misery.
8385, Chloritic slate (?) east of Clermont, on Tape Worm R. R., Franklin Co.
8386, Blue slate, in Tape Worm R. R. cut, 400′ east of Clermont house.
8387, Chloritic schist (?) near Benchhoff's Springs, 1 mile N. E. from Monterey, Franklin Co.
8388, near Buena Vista, 4 miles east from Waynesboro, Franklin Co.
8389, near Buena Vista, 4 miles east from Waynesboro, in Red run.
8390, near do.
8391, Green sandy slate, near do.

CATALOGUE OF THE HUDSON RIVER (N. Y.) COLLECTION, 1878.—8392 to 8519.

8392, Shaly sandstone, (bluestone,) locality 1, below Relyea's house and diagonally opposite Dinsmore's house, east of Ulster Park, opposite Staatsburg (dock), west side of river. D., S. 20° W. f. 50°.
8393, Black slate, do.
8394, Shaly sandstone, micaceous, do.
8395, Shaly sandstone, (blue,) locality 2, Esopus Island, below Dinsmore's, and on same strike. D., S. 85° E. f. 60°
8396, do. bluestone, do.

8397, Compact shaly sandstone, bluestone, locality 3, Al. Claywater's quarry, opposite and above Poughkeepsie, west side of river. D., N. 10° W. f. 10°–15°.
8398, Brecciated sandstone, do. do.
8399, Compact shaly sandstone, coarse bluestone, do.
8400, Lime shale, weathered, locality 4, Blue Point, diagonally opposite Poughkeepsie, specimens from cleavage planes.
8401, do. do. . do.
8402, Limestone, showing grades of weathering, locality 5, below Milton Station, below lime-kiln, on east side of river. D., S. 10° W. f. 10°.
8403, do. fresh fracture, do.
8404, Limestone, drab, locality 6, old lime-kiln dock, Peck Place, (between Knickerbocker's and Ruk's ice houses,) Hampton Point, west side of river. D., W. f. 25°.
8405, do. with shale, do.
8406, Shale, locality 7, below Delano's house, above Newburgh, west side.
8407, Syenite, locality 8, railroad cut through point opposite Polipet island at Sand dock; much contorted and broken.
8408, do. with quartz, do.
8409, Syenite, locality 9, railroad above 8 or first railroad cut below brickyards below Fishkill.
8410, Syenite, gray, granite, locality 10, point of rocks around (outside of) which wagon road passes between river and railroad tunnel, at point of Breakneck mountain. D., S. 45° E.
8411. Syenite, granite, no feldspar, coarse, locality 11, Lewis J. Dailey's quarry; stone from cliff about 200′ above river.
8412, Gray syenite, granite, do.
8413, Hornblende gneiss, do.
8414, Syenite, (granite,) gray, locality 12, Storm King Granite Co.'s quarry, opposite 11, foot of Storm King mountain.
8415, do. coarse crystals, feldspar, hornblende. do.

8416, Syenite, dark, locality 13, old quarry on point above Cold Spring, east side of river. D., S. 60° E. ?

8417, Red granite with epidote vein, locality 14, geologically between 12 and 13, west bank of river, on line of north flank of mountain south of Breakneck. D., S. 40°–45° E. f. 30°–40°.

8418, Syenite, water worn, do.

8419, Hornblendic gneiss, do.

8420, Gneiss, gray, do.

8421, Gneiss, do.

8422, Syenite with epidote, (coarse red,) locality 15, old quarry opposite 13 and a little north, west bank of river, geologica y between 12 and 13.

8423, Hornblende and Hornblende gneiss, do.

8424, Syenite, locality 16, quarry opposite and above Cold Spring, below 15, geologically below 13. Strike= 15, f.= ±90°.

8425, do. with hornblendic gneiss, do.

8426, Gneiss, gray, locality 17, Rocky Point above Target Rock, opposite and above West Point. (Powder House Hill.)

8427, do. with quartz and feldspar, do.

8428, do. hornblendic, do.

8429, Hornblendic gneiss, locality 18, Target Rock above and opposite West Point and below 17.

8430, Granite, do.

8431, Gneiss, do.

8432, Granite, coarse, do.

8433, Granulite, locality 19, opposite and a little below West Point; railroad cut above Garrison's.

8434, Quartzite, do.

8435, Quartz, weathered, do.

8435*a*, Gneiss, do.

8436, *Labradorite*, (loc.?) locality 20, cliff at Garrison's, opposite and below West Point.

8437, Quartz, feldspar and garnet. do.

8438, Granulite, locality 21, Kohn's Hook, below West Point, west side of river.

8439, Micaceous gneiss, locality 22, Flat rock opposite Cozzen's Hotel, geologically between 20 and 21.
8440, Gneiss, do.
8441, Mica schist, do.
8442, Hornblende, do.
8443, Gneiss with plumbago, locality 23, railroad cut at King's Dock.
8444, Granite and syenite, gray, locality 24, Dinnon's or King's Dock, opposite and a little below Kohn's Hook, south of base of Sugar Loaf mountain; quarry ¼ mile back from river at base of mountain.
8445, Micaceous gneiss, locality 25, opposite Chemical Works, point just above Fort Montgomery, west side of river.
8446, *Labradorite*, do.
8447, do. micaceous, do.
8448, Micaceous gneiss, do.
8449, Gneiss, locality 26, Forrest of Dean Mine; specimens from wharf at Fort Montgomery.
8450, Magnetite, hornblende and feldspar, (red,) do.
8451, Magnetite and feldspar, (red,) do.
8452, Magnetite, do.
8453, Gneiss with scales of plumbago, locality 27, base of cliff under Fort Montgomery, opposite and above Fort Clinton, west side of river.
8454, Gneiss, thinly bedded, do.
8455, Syenite with epidote, etc., locality 28, railroad tunnel at base of Anthony's Nose. D., S. 45° E. ± 90°.
8456, Quartz, red feldspar and epidote, do.
8457, Black compact, hornblendic? rock, do.
8458, do. with epidote, do.
8459, do. do. do.
8460, Gneiss, weathered, locality 29, base of cliff opposite 28, below Fort Clinton.
8461, Granite, red, locality 30, opposite and below Anthony's Nose, point of rocks north of Iona Island.
8462, Granite, gray banded, locality 31, railroad cutting below tunnel through Anthony's Nose.
8463, do. coarse, do.

8464, Micaceous gneiss, gray, locality 31, railroad cutting below tunnel through Anthony's Nose.
8465, Gneiss, locality 32, upper end of Iona Island.
8466, Quartz and feldspar, do.
8467, Trap? locality 33, tunnel beneath Manitu mountain.
8468, Syenite, do.
8469, Gneiss, do.
8470, Compact gneiss, locality 34, railroad cut below 33 tunnel.
8471, do. do.
8472, do. do.
8473, Hornblendic gneiss, do.
8474, Hornblende and feldspar, do.
8475, Coarse gneiss, locality 35, upper point of Dunderberg mountain.
8476, Gneiss, locality 36, lower point of Dunderberg mountain, Kidd's Point, above Caldwell's Landing.
8477, do. banded, do.
8478, Granitoid gneiss, locality 37, cliff north of Peekskill, at point of railroad crossing of Peekskill Bay, east side.
8479, Limestone with alternate beds of hornblendic rock, weathered, locality 38, point 1½ miles below Peekskill, Jimmey's Cove, east bank.
8480, do. do. do.
8481, Limestone, impure, do.
8482, do. and shale, weathered, do.
8483, do. do. do.
8484, do. and sandstone with hornblende, water-marked, do.
8485, Hornblendic gneiss, locality 39, point ½ mile below Peekskill, east bank.
8486, Limestone, light-blue, locality 40, upper end of Verplank's Point Cove, above lime quarry, east side. D., S. 35° E. f. 30°–40°.
8487, do. banded, do.
8488, do. micaceous, do.
8489, Quartz, locality 41, Verplank's Point lime quarry, above iron furnace, east side.

8490, Limestone, micaceous, locality 41, Verplank's Point lime quarry, above iron furnace, east side.
8491, Marble, do.
8492, do. granular, with hornblende, do.
8493, do. white, do.
8494, do. micaceous, banded, do.
8495, do. do. do.
8496, do. do. pink, do.
8497, Limestone, blue, with calcite, locality 42, lime-kilns, Tompkin's Cove, above Haverstraw, west bank.
8498, do. brecciated, do.
8499, do. calcite crystal, do.
8500, do. brecciated, do.
8501, Coarse granitoid gneiss, locality 43, cliff below (under) Haverstraw Light-house.
8502, do. with trap, do.
8503, Granite, red, locality 44, De Graff's second tunnel, below Verplank's Point, on east bank.
8504, Garnetiferous schistose gneiss, locality 45, third cut above Croton. D., S. 45° E. ±90°.
8505, do. locality 46, second railroad cut above Croton. D., = 45°.
8506, Conglomerate and sandstone, (gray,) New Red, locality 47, point ¼ mile above Rockland Lake Ice Co.'s dock, west side of river.
8507, do. (red,) New Red, do.
8508, Trap, locality 48, Tompkin's Cove Lime Co.'s wharf, below 47.
8509, Granite, red, locality 49, wharf below prison at Sing Sing.
8510, Marble, white, coarse crystalline, do.
8511, do. fine-grained, do.
8512, do do. micaceous, do.
8513, Sandstone, thinly bedded, micaceous, locality 50, railroad cut, just below 49.
8514, Gneissoid sandstone, do.
8515, Hornblendic gneiss, banded, and mica schist, locality 51, railroad cut, above Tarrytown, and about the Freemont Place.

8516, Hornblendic gneiss, banded, and mica schist, locality 51, railroad cut, above Tarrytown, and about the Freemont Place.
8517, Red granite, coarse, do.
8518, Gray do. do. do.
8519, Hornblendic gneiss, slaty, do.

8520 to 8603—P. FRAZER—1879.

8520, (2184,) Gneiss, ½ mile S. of Philadelphia Iron Co.'s mine, Bart Twp., Lancaster Co.
8521, (2185,) Quartz slate, McCall's house, 1 mile S. E. Cooney's Inn, Peach Bottom Twp., York Co.
8522, (2186,) Gneiss, ½ mile N. Georgetown, Lancaster Co.
8523, (2187,) Quartzite, (quartz-slate,) mouth of Peter's creek, Lancaster Co.
8524, (2188,) Barite, Hoving's farm, 3 miles S. E. Waynesboro', Franklin Co.
8525, (2189, Limestone, do. do.
8526, (2190,) Quartz-slate, (chlorite matrix,) ¼ mile S. E. Peach Bottom, near McCall's house, York Co.
8527, (2191,) Limestone, E. A. Hoving's farm, 3 miles E. Waynesboro', Franklin Co.
8528, (2192,) Shale, limestone quarry, near Mell's mine, 1½ miles N. E. Fairfield, Adams Co.
8529, (2193,) Cupriferous shale, Baumgartner's land, Mell's lease, 1½ miles N. E. Fairfield.
8530, (2194,) Micaceous iron ore in shale, do.
do. (40′ shaft.)
8531, (2195,) Epidotic Orthofelsite, (weathered,) Hamiltonban, S. E. side of Bingham's vein.
8532, (2196,) Barite, E. A. Hoving's farm, 3 miles N. E. Waynesboro', Franklin Co.
8533, (2197,) Chlorite slate, green, arenaceous, S. E. of Bingham's shaft, Hamiltonban Twp.
8534, (2198,) Epidotic rock, copper stain, 300 meters west of Glad Hills.

8535, (2199,) Orthofelsite and blue slate, Musselman's (S.) ore opening, Adams Co.
8536, (2200,) Copper ore, (epidotic rock, Malachite,) Bechtel's ore opening, Hamiltonban Twp.
8537, (2201,) Gangue rock, walls, E. and W. of copper shaft, do.
8538, (2202,) Chlorite schist, dark green, Musselman's (S.) copper ore opening, 3 miles W. of Fairfield.
8539, (2203,) Chlorite schist and quartz, do. do.
8540, (2204,) Epidote rock, Wieringer's house, Adams Co.
8541, (2205,) Epidote rock and picrolite, Keilholtz's opening, South Mountain copper belt, Adams Co.
8542, (2206,) Orthofelsite, stained with copper, J. Benchoff's, Adams Co.
8543, (2207,) do. bottom of shaft E. of Musselman tract.
8544, (2208,) Copper ore, upper exposure of Wm. Benchoff.
8545, (2209,) Chloritic orthofelsite, Musselman's tunnel.
8546, (2210,) Chlorite, copper stained, Musselman's excavation, 1½ miles S. W. Fairfield, Adams Co.
8547, (2211,) Float ore, field east of Clement's, Franklin Co.
8548, (2212,) Diorite, or syenite, Geo. Passmore's, Adams Co.
8549, (2213,) Coal, 16 miles S. E. Berkley's Springs, near "Third Hill Mountain," Meadow Branch, Morgan Co., W. Va.
8550, (2214,) Quartz, with mica, ½ mile N. E. Stricklerville, Chester Co.
8551, (2215,) Garnetiferous schist, Logan's limestone quarry, East Marlborough Twp., Chester Co.
8552, (2216,) do. Benj. Swayne's limestone quarry, London Grove Twp., Chester Co.
8553, (2217,) Copper ore, 3 miles N. E. Monteray, Adams Co.
8554, (2218,) Picrolite, chlorite, epidote, do. do.
8555, (2219,) Quartz in chlorite, about 3 miles from Monteray.
8556, (2220,) Syenitic dyke, Jno. Wright's mill, ½ mile E. of Kennett Square, Chester Co.
8557, (2221,) Gneissoid sandstone, Lewis Passmore, 1 mile N. E. of Stricklerville, Chester Co.

8558, (2222,) Limestone, 1 mile N. of Chadd's Ford, west side of Brandywine creek, Chester Co.

8559, (2223,) Dolerite, ¼ mile west of Upland, west Marlboro' Twp., Chester Co.

8560, (2224,) Serpentine rock, Jno. Campbell, 1½ miles S. E. Fremont P. O., West Nottingham Twp.

8561, (2225,) Limestone, inter-bedded between gneiss, 1 mile N. W. of Chadd's Ford, right bank of Brandywine creek, Chester Co.

8562, (2226,) Chlorite schist, ¼ mile S. E. Fairview schoolhouse, Chester Co.

8563, (2227,) Feldspar, Jesse Clark's, 1 mile N. E. of Fairville, Pennsbury Twp.

8564, (2228,) Quartz, do. do.

8565, (2229,) Limestone, impure, quartz, Aaron Mendenhall's, 1 mile N. E. Fairville.

8566, (2230,) Cupriferous hydro-mica schist, A. A. Roop's, 1½ mile S. of New Windsor, Cecil Co., Md.

8567, (2231,) Tourmaline crystals, David Hobach's, Washington Twp. ? York Co., presented by J. Spangler, of York.

8568, (2232,) Micaceous sandstone, N. end of Georgetown, York Co.

8569, (2233,) Syenite, do.

8570, (2234,) Hydro-mica schist, W. Jenkinson's, Octorara creek, Lancaster Co.

8571, (2235,) Chloritic limestone, granular crystalline, N. Guest's limestone quarry near Doe run, Chester Co.

8572, (2236,) Syenite, (in place,) 1 mile S. of Martin's Corner, Honeybrook Twp., Chester Co.

8573, (2237,) Gneissoid mica schist, R. Alexander's, 1 mile N. of Bartville, Lancaster Co.

8574, (2238,) Gneiss.

8575, (2239,) Gneiss, pyrite casts, Oleweiler's house 200 rods S. of Woodstock, Lower Windsor Twp., York Co.

8576, (2240,) Chloritic mica schist, ½ mile S. E. of Centerville, York Co.

8577, (2241,) Gneissoid mica schist, near Grahamville Twp., York Co.
8578, (2242,) Hydro-mica schist, coarse micaceous, C. Carman's house, Lower Windsor Twp., York Co.
8579, (2243,) Gneissoid mica schist, C. H. Weiser's, 1½ mile S. E. from New Bridgeville, York Co.
8580, (2244,) do. ½ mile S. W. of Crallville.
8581, (2245,) do. ¼ mile S. E. of York Furnace.
8582, (2246,) Chloritic mica schist, ½ mile N. W. of York Furnace, York Co.
8583, (2247,) Chloritic rock, York furnace, York Co.
8584, (2248,) Mica schist, 1 mile S. E. of Centreville, York Co.
8585, (2249,) Gneissoid hydro-mica schist, near G. Smelzer's, York Co.
8586, (2250,) Chloritic mica schist, 1¼ *kilometers* N. W. of Peach Bottom P. O., York Co.
8587, (2251,) Gneiss, N. W. end of Bryansville bridge, P. B. R. R., York Co.
8588, (2252,) Chloritic gneiss, do. do.
8589, (2253,) Dolerite, (characteristic fracture,) Wm. Hill's, Adams Co.
8590, (2254,) Hornblende rock, massive bowlders, ½ mile S. E. of Kennett Square, Chester Co.
8591, (2255,) Trap, near intersection of Waynesboro' branch and W. and N. R. R., Chester Co.
8592, (2256,) Dolerite near E. Cook's, London Grove and West Marlboro' Twp. line, Chester Co.
8593, (2257,) Trap in chloritic sandrock, R. R. station 1454, C. and P. D. R. R.
8594, (2258,) Roofing slate, J. B. Erb's, Elizabethtown, near Seelock run, Lancaster Co.
8595, (2259,) Quartzite, ½ mile N. of Freihill, Lancaster Co.
8596, (2260,) Blue gneiss, near J. Charles, West Lampeter Twp., Lancaster Co.
8597, (2261,) Limestone near Marticville, Lancaster Co.
8598, (2262,) Cupriferous hydro-mica schist, Stauffer's farm, 2 miles S. of New Windsor, Cecil Co., Md.

8599, (2263,) Slate, ½ mile N. E. of Franklin furnace, Franklin Co.
8600, (2264,) Slate, with slickensides, Gosherd's tunnel, shafts B. and M., ½ mile N. E. Franklin Furnace.
8601, (2265,) Black slate, end of Gosherd's tunnel, ½ mile N. E. Franklin Furnace.
8602, (2266,) Slaty limestone, Gosherd's house, ½ mile N. Franklin Furnace.
8603, (2267,) Slate, quartz veins, end of Gosherd's tunnel, ½ mile N. E. Franklin Furnace.

CHEMUNG (VERGENT) NO. VIII.

Emporium Section.

8604, (1,) Gray, fine-grained, micaceous sandstone, from Sinnemahoning Portage, 1½ miles north of Emporium Junction, Shippen Twp., Cameron Co.
8605, (2,) Green shale, do.
8606, (3,) Greenish gray, fine-grained, massive sandstone, do.
8607, (4,) Gray sandy slate, do.
8608, (5,) Green iron-stained shale, do.
8609, (6,) Gray, fine-grained, massive sandstone, do.
8610, (7,) do. do.
8611, (8,) Gray conglomeritic sandstone, do.
8612, (9,) Red conglomerate, do.
8613, (10,) Gray micaceous sandstone, do.
8614, (11,) Green, argillaceous shale, do.
8615, (12,) Green, massive, conglomeritic sandstone, do.
8616, (13,) Green, micaceous flags, do.
8617, (14,) Blueish-gray fine-grained sandstone, do.
8618, (15,) Gray flat pebble conglomerate, do.
8619, (16,) Olive slate do. do.
8620, (17,) Gray micaceous sandstone, containing carbonaceous matter, do.
8621, (18,) Gray gritty shale, do.

Morrison's Dam.

8622, (19,) Green shaly sandstone, fossiliferous, from below Morrison's dam, on north fork of Sugar run, Corydon Twp., McKean Co.
8623, (20,) Gray massive sandstone, fossiliferous do.
8624, (21,) Green, micaceous, shaly sandstone, do.
8625, (22,) Gray, flaggy, micaceous sandstone, do.
8626, (23,) Green, gritty sandstone, fossiliferous, do.
8627, (24,) Gray, micaceous sandstone, do.
8628, (25,) Gray, massive do. do.
8629, (26,) Green, gritty do. do.
8630, (27,) Iron stained shale, fossiliferous, do.
8631, (28,) Gray, micaceous, massive sandstone, do.
8632, (29,) Gray, massive sandstone, do.
8633, (30,) Gray, micaceous shale, do.

CATSKILL (PONENT) No. IX.

Sinnemahoning Section.

8634, (31,) Green argillaceous slate, 470′ below top of formation, from west bank of the first fork at Sinnemahoning, Cameron Co.
8635, (32,) Gray micaceous sandstone, 450′ do.
8636, (33,) Red do. do. 445′ do.
8637, (34,) Green and red do. 445′ do.
8638, (35,) Red micaceous do. 445′ do.
8639, (36,) Green, micaceous, sandy shale, 445′ do.
8640, (37,) Green, massive sandstone, 425′ do.
8641, (38,) Red, micaceous, massive sandstone, from Ellicott's run, 1 mile northeast of Sinnemahoning, Grove Twp., Cameron Co.
8642, (39,) Soft, green slate, 50′ below top of formation, do.
8643, (40,) Red, micaceous, shaly sandstone, near top of formation, do.
8644, (41,) Green, gritty, flaggy sandstone, do. do.
8645, (42,) Red, micaceous, shaly do. do. do.
8646, (43,) do. thin-bedded do., at top do. do.

Driftwood Section.

8647, (44,) Red micaceous sandstone, 490′ below top of formation, from side cut, south end of P. and E. R. R. yard, Driftwood, Cameron Co.
8648, (45,) Red, micaceous shaly sandstone, 490′ do.
8649, (46,) Gray slate, 490′ do.
8650, (47,) Green massive sandstone, 490′ do.
8651, (48,) Green massive fine-grained sandstone, 490′ do.
8652, (49,) Red micaceous massive sandstone, 490′ do.
8653, (50,) Red massive sandstone, 490′ do.
8654, (51,) Greenish-gray micaceous sandstone, 490′ do.
8655, (52,) Green micaceous sandstone, 490′ do.
8656, (53,) Red massive sandstone, 490′ do.
8657, (54,) Red massive sandstone, 490′ do.
8658, (55,) Green micaceous flaggy sandstone, 490′ do.
8659, (56,) Green shaly sandstone, 490′ do.
8660, (57,) Green massive sandstone, 365′ do. from hill immediately west of Driftwood, Gibson Twp., Cameron Co.
8661, (58,) Green micaceous sandstone, 310′ below top of formation.
8662, (59,) Red micaceous thin-bedded sandstone, 260′ do.
8663, (60,) do. 210′ do.
8664, (61,) Gray micaceous sandstone, 210′ do.
8665, (62,) do. 190′ do.
8666, (63,) Gray flaggy sandstone, 190′ do.
8667, (64,) Red micaceous flaggy sandstone, 170′ do.
8668, (65,) Red micaceous sandstone, 170′ do.
8669, (66,) do. 160′ do.
8670, (67,) do. thin-bedded, 160′ do.
8671, (68,) Gray micaceous gritty sandstone, 150′ do.
8672, (69,) do. massive, 120′ do.
8673, (70,) Red micaceous sandstone, 115′ do.
8674, (71,) Gray thin-bedded sandstone, 80′ do.
8675, (72,) Red micaceous sandstone, 60′ do.
8676, (73,) Red massive sandstone, 10′ do.
8677, (74,) Red and gray micaceous flaggy sandstone, top of formation.

8678, (75,) Red argillaceous micaceous sandstone, Kinzua creek, near Tally Ho pumping station, Hamlin Twp., McKean Co.
8679, (76,) do. do.
8680, (77,) Green flaggy micaceous sandstone, do.
8681, (78,) Red argillaceous shale, do.
8682, (79,) Green micaceous flaggy sandstone, do.
8683, (80,) do. do.
8684, (81,) Green shale, do.
8685, (82,) Red argillaceous shale, do.
8686, (83,) Dark red shale, do.
8687, (84,) Red micaceous shaly sandstone, do.
8688, (85,) Red shale, do.
8689, (86,) Ferruginous micaceous sandstone, do.
8690, (87,) Red shale, do.
8691, (88,) do. do.

POCONO, (VESPERTINE,) No. X.

Sinnemahoning Section.

8692, (89,) Gray micaceous flaggy sandstone, 20′ above bottom of formation, Ellicott's run, 1 mile N. E. of Sinnemahoning, Grove Twp., Cameron Co.
8693, (90,) Blue calcareous sandstone, 20′ do.
8694, (91,) Green micaceous sandstone, 70′ do.
8695, (92,) Green gritty sandstone, 90′ do.
8696, (93,) Green micaceous flaggy sandstone, 100′ do.
8697, (94,) Bluish gray calcareous sandstone, (crinoid stems,) 100′ do.
8698, (95,) Green micaceous fine-grained sandstone, 140′ do.
8699, (96,) Black coal slate, (plant impressions,) 150′ do.
8700, (97,) Green gritty fine-grained sandstone, 160′ do.
8701, (98,) Gray micaceous thin-bedded sandstone, 170′ do.
8702, (99,) Green micaceous flaggy sandstone, 210′ do.
8703, (100,) Gray micaceous thin-bedded sandstone, 240′ do.

8704, (101,) Green micaceous sandstone, 300′ do.
8705, (102,) Gray do. do. 300′ do.
8706, (103,) Gray gritty do. 300′ do.
8707, (104,) Gray fine-grained do. 300′ do.
8708, (105,) Blue micaceous iron-stained do. 320′ do.
8709, (106,) Olive micaceous thin-bedded do. 350′ do.
8710, (107,) Sandy slate, 440′ do.
8711, (108,) Olive micaceous, thin bedded sandstone, 590′ do.
8712, (109,) Olive close grained micaceous, do. 720′ do.
8713, (110,) do. 725′ do.

Driftwood Section.

8714, (111,) Red micaceous sandstone, 60′ above the bottom of the formation, from hill west of Driftwood, Gibson Twp., Cameron Co.
8715, (112,) do. thin bedded, 70′ do.
8716, (113,) Gray do. 80′ do.
8717, (114,) Red do. 90′ do.
8718, (115,) do. thin-bedded, 110′ do.
8719, (116,) Green do. 120′ do.
8720, (117,) Gray thin bedded sandstone, 125′ do.
8721, (118,) Red do. micaceous, 140′ do.
8722, (119,) Gray micaceous sandstone, 140′ do.
8723, (120,) Red do. flaggy, 160′ do.
8724, (121,) do. thin bedded, 180′ do.
8725, (122,) Gray do. 200′ do.
8726, (123,) do. thin bedded, 200′ do.
8727, (124,) Red flaggy sandstone, 245′ do.
8728, (125,) Red micaceous sandstone, 245′ do.
8729, (126,) Gray flaggy sandstone, gritty, 260′ do.
8730, (127,) Green micaceous sandstone, 280′ do.
8731, (128,) Red do. 330′ do.
8732, (129,) Green, do. flaggy, 400′ do.
8733, (130,) do. do. 440′ do.
8734, (131,) Olive sandstone, flaggy, 460′ do.
8735, (132,) Olive micaceous, 500′ do.
8736, (133,) Green, do. thin bedded, 515′ do.

8737, (134,) Green micaceous sandstone, 540′ do.
8738, (135,) Olive, do. 540′ do.
8739, (136,) do. 560′ do.
8740, (137,) Green, do. thin bedded, 56′ do.
8741, (138,) Olive, do. flaggy, 600′ do.
8742, (139,) do. thin bedded, 630′ do.
8743, (140,) do. do. 640′ do.
8744, (141,) do. 640′ do.
8745, (142,) do. 640′ do.
8746, (143,) Green, do. 650′ do.
8747, (144,) Olive, do. compact, top of formation, do.
8748, (145,) do. thin bedded, do.

Benezette Station.

8749, (146,) Green micaceous sandstone, massive, 450′ below top of formation, vicinity of Benezette, Benezette Twp., Elk Co.
8750, (147,) Red gray, do. 450′ do.
8751, (148,) Gray fine-grained sandstone, massive, 445′ do.
8752, (149,) Green micaceous sandstone, shaly, 445′ do.
8753, (150,) Gray, do. massive, 440′ do.
8754, (151,) Red shale, 435′ do.
8755, (152,) Green shale, 440′ do.
8756, (153,) Green shaly sandstone, 440′ do.
8757, (154,) Red and green sandstone, massive, 440′ do.
8758, (155,) Gray, do. 440′ do.
8759, (156,) Limestone, 415′ do.
8760, (157,) Olive sandstone, gritty, 415′ do.
8761, (158,) Fossil limestone, 415′ do.
8762, (159,) Iron ball, 280′ do.
8763, (160,) Green slate, 285′ do.
8764, (161,) Gray sandstone, massive, gritty, 285′ do.
8765, (162,) Gray micaceous, do. massive, 285′ do.
8766, (163,) Dark slate, 285′ do.
8767, (164,) Olive, micaceous sandstone thin bedded, 220′ do.

8768, (165,) Green, micaceous sandstone, 170′ do.
8769, (166,) do. 170′ do.
8770, (167,) Olive, do. massive, 165′ do.
8771, (168,) Gray sandstone, massive, 150′ do.
8772, (169,) Green slate, do. 150′ do.
8773, (170,) do. 150′ do.
8774, (171,) Olive micaceous sandstone, 162′ do.
8775, (172,) Green, do. 145′ do.
8776, (173,) Olive, do. slaty, 110′ do.
8777, (174,) Gray gritty sandstone, massive, 110′ do.
8778, (175,) Green micaceous sandstone, flaggy, 90′ do.
8779, (176,) Green-gray sandy slate, 90′ do.
8780, (177,) Gray-yellow sandstone, gritty, 90′ do.
8781, (178,) Gray micaceous sandstone, massive, 85′ do.
8782, (179,) Olive, do. 85′ do.
8783, (180,) Olive flaggy sandstone, gritty, 35′ do.
8784, (181,) Gray flaggy sandstone, do.
8785, (182,) Gray sandstone, thin bedded, top of formation.
8786, (183,) Olive flaggy sandstone, do.

Caledonia.

8787, (184,) Gray sandstone, massive, Caledonia tunnel, Jay Twp., Elk Co.
8788, (185,) Olive micaceous sandstone, massive.
8789, (186,) Green shale.
8790, (187,) Flaggy micaceous sandstone, *sub-olean conglomerate.*
8791, (188,) Conglomerate 220′ below top of formation, Ridgway, Ridgway Twp., Elk Co.
8792, (189,) Green flaggy sandstone, Wilmath, Ridgway Twp., Elk Co.
8793, (190,) Conglomerate, Hubert run, Wetmore Twp., McKean Co.
8794, (191,) do. do.
8795, (192,) Olive, fine-grained sandstone, vicinity of Tally Ho pumping station, Kinzua creek, Lafayette Twp., McKean Co.

8796, (193,) Conglomerate, do.
8797, (194,) do. do.
8798, (195,) do. pebbles, do.
8799, (196,) do. do.
8800, (197,) do. pebble *sub-olean*, do.
8801, (198,) do.. ferruginous, do.
8802, (199,) Sandstone, iron stained, do.
8803, (200,) do. do.
8804, (201,) do. coarse, fossiliferous, do.
8805, (202,) Ferruginous sandstone, fossiliferous, do.
8806, (203,) do. do.
8807, (204,) do. do.
8808, (205,) do. do.
8809, (206,) do. do.
8810, (207,) do. do.
8811, (208,) do. do.
8812, (209,) do. do.
8813, (210,) do. do.
8814, (211,) do. coarse, do.

Kinzua Creek.

8815, (212,) Conglomerate, Kinzua creek, Corydon Twp., Warren Co.
8816, (213,) do. do.
8817, (214,) do. do.
8818, (215,) do. do.
8819, (216,) do. do.
8820, (217,) do. do.

Sub-olean Conglomerate.

8821, (218,) Conglomerate, Morrison's dam, N. branch of Sugar run, Corydon Twp.

Tionesta.

8822, (219,) Black micaceous slate, vicinity of Tionesta, Tionesta Twp., Forest Co.
8823, (220,)Dark slate, do.
8824, (221,) Ridgway micaceous slate, do.
8825, (222,) Red shaly sandstone, do.

8826, (223,) Green sandstone, massive, bands of small pebble conglomerate, do.
8827, (224,) Conglomerate small pebble, do.
8828, (225,) do. do. do.
8829, (226,) Dark slate, do.
8830, (227,) Gray fine-grained sandstone, massive, do.
8831, (228,) Light gray do. do.
8832, (229,) do. do. do.
8833, (230,) Gray micaceous sandstone, flaggy, do.
8834, (231,) Green do. do.
8835, (232,) Gray fine-grained sandstone, flaggy, do.
8836, (233,) Green shale, do.
8837, (234,) do. do.
8838, (235,) Green shaly sandstone, do.
8839, (236,) Coarse-grained sandstone, do.
8840, (237,) Dark gray slate, do.
8841, (238,) do. micaceous sandstone, 1060′ above tide, do.
8842, (239,) Gray sandstone, fine-grained, do.
8843, (240,) Green do. flaggy, do.
8844, (241,) Blue-gray do. fine-grained, 1160′ above tide, do.
8845, (242,) Iron-stained slate, do.
8846, (243,) Gray sandstone, fine-grained, 1175′ above tide, do.
8847, (244,) Gray do. massive, fine-grained, do.
8848, (245,) Limestone, 1180′ above tide, do.
8849, (246,) Green sandstone, flaggy, 1210′ do. do.
8850, (247,) Light-colored do. compact, fine-grained, 1225′ do. do.
8851, (248,) Gray do. iron-stained, gritty, 1385′ do. do.
8852, (249,) do. thin-bedded, 1385′ do. do.
8853, (250,) Green do. massive, 1480′ do. do.
8854, (251,) Red and green shale, 1480′ do. do.
8855, (252,) Iron ore, 1590′ do. do.
8856, (253,) Fine-grained sandstone, quartzose, 1600′ do. do.

Hickory.

8857, (254,) Yellow sandstone, fine-grained, vicinity of Hickory station, Harmony Twp., Forest Co.
8858, (255,) Green do. flaggy, do.
8859, (256,) Dark-gray, do. do. do.
8860, (259,) Olive do. massive, fine-grained, 1225′ above tide, do.
8861, (258,) Gray micaceous do. flaggy, 1620′ do. do.
8862, (259,) Gray sandstone, iron-stained, road crossing W. Hickory creek at W. Gorman's, 1 mile S. W. Fagundas, Harmony Twp., Forest Co.
8863, (260,) Micaceous do. flaggy, do.

MAUCH CHUNK SHALE, (UMBRAL,) XI.

8864, (261,) Red clay and argillaceous shale, Ridgway, Ridgway Twp., Elk Co.
8865, (262,) Iron ore, Benezette, Benezette Twp., Elk Co.
8866, (263,) do. Trout run, near do.
8867, (264,) Sandy fireclay, do.

OLEAN CONGLOMERATE.

Sinnemahoning.

8868, (265,) Conglomerate and sandstone, Sinnemahoning, Grove Twp., Cameron Co.
8869, (266,) do. do.
8870, (267,) Coarse sandstone, do.
8871, (268,) Conglomerate, do.
8872, (269,) Coarse gray sandstone, do.
8873, (270,) Gray and yellow sandstone, coarse, Driftwood, Cameron Co.

Benezette.

8874, (271,) Coarse-grained sandstone, vicinity of Benezette, Elk Co.
8875, (272,) Conglomerate, do.

8876, (273,) Conglomerate, vicinity of Benezette, Elk Co.
8877, (274,) do. large pebbles, do.
8878, (275,) do. do.
8879, (276,) Coarse gray sandstone, do.
8880, (277,) Compact gray do. do.

Laurel Run.

8881, (278,) Compact gray sandstone, conglomeritic, Laurel run, near Caledonia, Elk Co.
8882, (279,) Conglomerate, small pebbles, do.
8883, (280,) do. do.
8884, (281,) do. pebbles, do.
8885, (282,) do. do.
8886, (283,) do. large pebbles, do.
8887, (284,) do. do.
8888, (285,) Gray sandstone, (breccia,) compact, from Caledonia, Jay Twp., Elk Co.
8889, (286,) Conglomerate, Brockport, Horton Twp., Elk Co.

Ridgway.

8890, (287,) Gray sandstone, Ridgway, Elk Co.
8891, (288,) Brown do. compact, do.
8892, (289,) Compact do. do.
8893, (290,) do. do.

Kinzua Creek.

8894, (291,) Conglomerate, Kinzua creek, Corydon Twp., Warren Co.
8895, (292,) do. large pebbles, do.
8896, (293,) do. do.
8897, (294,) Pink sandstone, *quartzose*, do.
8898, (295,) Conglomerate, do.
8899, (296,) Coarse sandstone, do.

Forest Co.

8900, (297,) Conglomerate, Foxburg, Howe Twp.
8901, (298,) Gray sandstone, massive, quartzose, Tionesta.
8902, (299,) *Pebble* conglomerate, Fagundas.
8903, (300,) Coarse grained sandstone, Pleasantville road.
8904, (301,) White micaceous sandy clay, do. 1½ mile from Tionesta, Tionesta Twp.

8905, (302,) Conglomerate, Millsburg, Harmony Twp.
8906, (303,) White sandstone, quartzose, Wesley Chapel, Harmony Twp.
8907, (304,) Gray sandstone, compact, flinty, do.
8908, (305,) Conglomerate, Millsburg, Harmony Twp.
8909, (306,) White pebble conglomerate, do.

POTTSVILLE (SERAL) CONGLOMERATE No. XII.

Kinzua Creek Sandstone.

Benezette Fireclay.

8910, (307,) Fireclay, Harbison & Walker mine.
8911, (308,) do. do. near Benezette, Elk Co.
8912, (309,) do. do.
8913, (310,) do. Jones' mine, do.
8914, (311,) do. do. do.
8915, (312,) do. do. do.
8916, (313,) do. Barr & Radcliffe mine, do.
8917, (314,) do. do. do.
8918, (315,) Iron ore, Harbison & Walker's clay mine, do.

Benezette.

8919, (316,) Gray and yellow sandstone, fine-grained, vicinity of Benezette, Elk Co.
8920, (317,) Gray do. coarse-grained, do.
8921, (318,) Conglomerate, do.
8922, (319,) White pebble conglomerate with coal seam, do.
8923, (320,) Gray sandstone, coarse-grained, Morgan farm, Benezette Twp.
8924, (321,) do. do.
8925, (322,) do. do.

KINZUA CREEK SANDSTONE.

Brockport.

8926, (323,) Sandstone, vicinity of Brockport, Horton Twp., Elk Co.
8927, (324,) Dark do. compact, do.
8928, (325,) Gray, do. do.

8929, (326,) Gray sandstone, vicinity of Brockport, Horton Twp., Elk Co.
8930, (327,) Gray, do. quartzose, do.
8931, (328,) Dark, do. compact, do.
8932, (329,) Iron ore, Alton group. do.
8933, (330,) Fireclay, (3′ above coal,) Glen Mayo colliery, near Johnsburg, Ridgway Twp., Elk Co.
8934, (331,) Fireclay, (average,) do.

Johnson Run Sandstone.

8935, (332,) Olive sandstone, compact, *quartzose*, Kane, Wetmore, McKean Co.
8936, (333,) Iron-stained, do. do.
8937, (334,) Gray, do. coarse, do.
8938, (335,) Iron-stained, do. compact, do.
8939, (336,) Gray, do. coarse, do.
8940, (337,) Iron-stained, do. do.
8941, (338,) Gray, do. do.
8942, (339,) do. do. do.
8943, (340,) Gray and yellow, do. coarse, do.
8944, (341,) Yellow gray, do. do.
8945, (342,) Coarse grained, do. do.
8946, (343,) Gray and yellow, do. coarse, do.
8947, (344,) Yellow, do. compact, do.
8948, (345,) Gray, do. coarse, do.

Ferriferous Limestone.

8949, (346,) Limestone, G. W. Winslow's farm, Benezette Twp., Elk Co.
8950, (347,) do. do.
8951, (348,) Iron ore, top of limestone, do.
8952, (349,) Limestone, Brandy Camp P. O., Horton Twp., Elk Co.
8953, (350,) do. J. S. Chamberlain's farm, Horton Twp.
8954, (351,) do. Chauncy Brockway's farm, do.
8955, (352,) Limestone, Oyster's quarry, Brockport, Elk Co.
8956, (353,) do. Frost's, Brockwayville, Jefferson Co.
8957, (354,) do. Morehead, Snyder Twp., Jefferson Co.

8958, (355,) Limestone, (lower bed,) Kane's quarry, Johnson run, Elk Co.
8959, (356,) do. (upper bed,) do.
8960, (357,) do. Kyler's Corners, Fox Twp., Elk Co.
8961, (358,) do. Freiburg, Clarion Co.

Johnstown Cement Bed.

8962, (359,) Limestone, McAllister's farm, Horton Twp.

Lower Freeport Limestone.

8963, (360,) Limestone, McAllister's farm, Brandy Camp, Horton Twp., Elk Co.
8964, (361,) do. Hyde farm, W. of J. S. Chamberlain's, Horton Twp.
8965, (362,) do. Geo. Faust's farm, Horton Twp.
8966, (363,) do. opening No. 10, Shawmut, Horton Twp.
8967, (364,) do. Chamberland's farm, E. side of Brandy Camp, Horton Twp.
8968, (365,) do. T. Foxes', Cove run, Horton Twp.

Upper Freeport Limestone.

8969, (366,) Limestone, Geo. Faust's farm, Horton Twp., Elk Co.
8970, (367,) do. Hyde farm, W. of Brandy Camp hotel, Horton Twp.

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8971, (368,) Morehead fireclay, Snyder Twp., Jefferson Co.
8972, (369,) Fossil plant.

LOWER BARREN COAL MEASURES No. XIII.

Mahoning Sandstone.

8973, (370,) Coarse sandstone, Goff farm, near Caledonia, Jay Twp., Elk Co.
8974, (371,) do. do.

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900–906, (IX,) Catskill group.
$\frac{x}{1}$, 1000, (X,) Waverly group.

CATALOGUE.

201, Trenton limestone, Kischicoquillis creek, just above mill-dam at Reedsville, Jack's Narrows, Mifflin Co. Coll. by A. Hale and C. E. Hall, 1875.
202, Trenton limestone, about seven miles above (S.W. of) Reedsville, north side of valley, opposite D. Campbell's house; upper portion of the limestone, Mifflin Co. Coll. by C. E. Hall, 1875.
203, Trenton limestone fossils, north side of creek, $\frac{1}{4}$ mile W. of Bellefonte, Centre Co. Coll. by C. E. Hall, 1875.

204, Trenton limestone, (Black river,) from Kischicoquillis creek, just above mill-dam at Reedsville, Jack's Narrows, Mifflin Co. Coll. by W. A. Fellows, 1875.

205, Trenton, (probably below Trenton,) just east of summit of road before reaching limekiln, north side of creek, Reedsville. Coll. by C. E. Hall, 1875.

206, Trenton limestone, from quarries at Martin's creek, Northampton Co. Coll. by C. E. Hall and W. A. Fellows, 1876.

207, Chazy, 1 mile S. W. of Martinsburg, in Morrison's cove, Blair Co. Coll. by F. Platt, 1875.

208, Calciferous, bottom of II, ⅛ mile E. of Williamsburg, on Juniata river, Blair Co. Coll. by F. Platt, 1875.

209, Black river limestone, ¼ mile E. of Fredericksburg, Blair Co. Coll. by R. H. Sanders, 1875.

210, Trenton limestone, Bellefonte, Centre Co. Coll. by W. A. Fellows, 1876.

211, Trenton limestone, from bluff on little Juniata river, above Tyrone forge and below covered bridge, (wagon road), Huntingdon Co. Coll. by W. A. Fellows, 1876.

212, Trenton limestone, from summit of hill, on road from Tyrone gap to Warrior's Mark, N. of Tyrone forge, Huntingdon Co. Coll. by W. A. Fellows, 1876.

213, Trenton limestone, from quarry on Copley Nearhoff's farm, 1½ miles N. of Tyrone forge, Huntingdon Co. Coll. by W. A. Fellows, 1876.

214, Trenton limestone, (top,) Douglass Campbell's, 2 miles from Belleville, Mifflin Co. Coll. by C. E. Billin.

301, Utica slate, Bellefonte, Centre Co. Coll. by C. E. Hall, 1875.

302, Lime shale, between Utica slate and Trenton limestone, Bellefonte, Centre Co. Coll. by C. E. Hall, 1875.

303, Slates III, 2½ miles S. W. Henrietta station, 2852′, bench of Tussey mountain, Bedford Co. Coll. by R. H. Sanders, 1875.

304, Hudson river, 1½ miles S. W. Henrietta mines, Blair Co. Coll. by R. H. Sanders, 1875.

305, Hudson river, Henrietta, on back of Leather Cracker anticlinal, Bedford Co. Coll. by R. H. Sanders, 1875.

306, do. No. 1, Blair Co. Coll. by R. H. Sanders, 1875.

307, Utica slate, Bellefonte, Centre Co. Coll. by W. A. Fellows, 1876.

400, Oneida Conglomerate, from Schuylkill Gap, Port Clinton. Coll. by H. M. Chance, 1874.

401, Medina, white sandstone, IV, Broad mountain, at Greenwood furnace, Huntingdon Co. Coll. by C. E. Billin, 1876.

501, Clinton shale, above fossil ore, from McKee's ore bank, N. E. of McKee's house, Ferguson valley, 7 miles N. W. of Lewistown, Mifflin Co. Coll. by A. Hale and C. E. Hall, 1875.

502, Clinton shale, above fossil ore, opening N. W. of McKee's house, about 1 mile; same horizon as 501. Coll. by A. Hale and C. E. Hall, 1875.

503, Clinton shale, above fossil ore from Matilda furnace, Mifflin Co. Coll. by A. Hale and C. E. Hall, 1875.

504, Clinton shale, above ore, Orbisonia, Huntingdon Co. Coll. by A. Hale and C. E. Hall, 1875.

505, Clinton shale, McKee's ore bank, Mifflin Co. Coll. by G. H. Christian, C. A. Ashburner, and A. Hale, 1874.

506, Clinton shale, (lime,) 2 miles S. W. of Bell's Mills, Blair Co. Coll. by C. E. Hall, 1875.

507, Clinton shale, Matilda furnace. Coll. by W. A. Fellows and C. E. Hall, 1875.

508, Clinton shale, N. of Blacklog creek, Orbisonia, Huntingdon Co. Coll. by C. E. Hall and W. A. Fellows, 1875.

509, Clinton shale, crinoid stems, 10 to 12 feet below ore opening, N. side of Blacklog creek, Orbisonia, Huntingdon Co. Coll. by W. A. Fellows and C. E. Hall, 1875.

510, Clinton shale, about 140 feet above base of the Clinton do. Coll. by W. A. Fellows and C. E. Hall, 1875.

511, Clinton shale, about 80 feet above base of the Clinton do. Coll. by W. A. Fellows and C. E. Hall, 1875.

512, Clinton shale, 60 feet above base of the Clinton do. Coll. by W. A. Fellows and C. E. Hall, 1875.

513, Clinton shale, (fossil ore,) Jos. Patton's limestone ore bank, ore above limestone, near Hollidaysburg, Blair Co. Coll. by R. H. Sanders, 1875.

514, Clinton shale, 1 mile N. W. of Frankstown, Cambria Iron Co.'s slope, Blair Co. Coll. by R. H. Sanders, 1875.

515, Clinton shale, roof slate of Frankstown bed. Coll. by R. H. Sanders, 1875.

601, Lower Helderberg, from 1½ miles south of Rock Hill furnace, Orbisonia, Huntingdon Co. Coll. by A. Hale and C. E. Hall, 1875.

602, Lower Helderberg, from field back of sand quarry, near Rock Hill furnace, Orbisonia. Coll. by C. E. Hall, 1875.

603, Lower Helderberg, back of Orbisonia, slope, sandy ridge, Huntingdon Co. Coll. by A. Hale and C. E. Hall, 1875.

604, Lower Helderberg, Mansing's quarry, near Hazardville, Carbon Co. Coll. by W. A. Fellows and F. A. Genth, 1875.

605, Lower Helderberg, near Orbisonia, slope of Royer Ridge, Huntingdon Co. Coll. by C. E. Hall and W. A. Fellows, 1875.

606, Lower Helderberg, near Bushkill, Pike Co., from river slope of Hog's Back ridge, near road to Shawnee, Wallpack Bend. Coll. by W. H. Fellows, 1876.

607, Lower Helderberg, VI, from quarry north of Tyrone city, Blair Co. Coll. by C. E. Hall and W. A. Fellows, 1876.

608, Lower Helderberg, north slope of Hog's Back ridge, below mouth of Big Bushkill creek, Monroe Co. Coll. by C. E. Hall and W. A. Fellows, 1876.

609, Lower Helderberg, Delaware river, below Shawnee, Monroe Co. Coll. by C. E. Hall and W. A. Fellows, 1876.

610, Lower Helderberg, (VI,) from A. B. Miller's farm, Warrior ridge, Barree Twp., Huntingdon Co. Coll. by C. E. Billen, 1876.

701, Oriskany sandstone, Sandy ridge sand quarry, S. of Blacklog creek, Orbisonia, Huntingdon Co. Coll. by C. E. Hall, 1875.

702, Oriskany, (lime-sand,) southern extremity of Royer ridge, Orbisonia. Coll. by C. A. Ashburner and C. E. Hall, 1875.

703, Oriskany, Royer ridge, N. of road crossing at Orbisonia, Huntingdon Co. Coll. by C. E. Hall, 1875.

801, Hamilton group, 1½ miles north of Craig's meadow, at Marshall's Falls, on Marshall's creek, Monroe Co. Coll. by H. M. Chance, 1874.

802, Hamilton, Aughwick creek, just below bridge, at Saddle-back gap, Orbisonia, Huntingdon Co. Coll. by C. A. Ashburner and C. E. Hall, 1875.

803, Hamilton shale, Saddle-back ridge, Orbisonia, Huntingdon Co. Coll. by C. E. Hall, 1875.

804, Hamilton, from Marshall's creek, Monroe Co. Coll. by W. A. Fellows and F. A. Genth, Jr., 1875.

805, Hamilton shale, Bell's Mills, Blair Co. Coll. by C. E. Hall, 1875.

806, Hamilton shale, Levi Detrich's farm, ½ mile N. of Marshall's Falls, Monroe Co. Coll. by W. A. Fellows and F. A. Genth, Jr., 1875.

807, Hamilton, Geo. Kintner's farm, 1 mile S. W. from Marshall's Falls, Monroe Co. Coll. by W. A. Fellows and F. A. Genth, 1875.

808, Hamilton, Dingman's creek falls, near Dingman's Ferry, Pike Co. Coll. by W. A. Fellows, 1876.

809, Hamilton, along canal, near (N. of) Port Jervis, Orange Co., N. Y. Coll. by C. E. Hall and W. A. Fellows, 1876.

810, Upper Helderburg VIII, (lower portion,) south slope of Hogs-back ridge, on road to Shawnee, by way of DeWitt's, Monroe Co. Coll. by W. A. Fellows, 1876.

850, Chemung group, Lawrenceville, Tioga Co. Coll. by A. Sherwood, 1875.

851, Chemung, near mouth of Elk run, 2 miles W. of Gainer, 20 to 40 rods above bridge over Pine creek, Tioga Co. Coll. by A. Sherwood, 1875.

852, Chemung, (upper,) near Covington, Covington Twp., Tioga Co. Coll. by A. Sherwood, 1875.

853, Chemung, (upper,) at Tioga village, Tioga Co. Coll. by A. Sherwood, 1875.

854, Chemung, (upper,) from Charleston Twp. Coll. by A. Sherwood, 1875.

855, Chemung, (upper,) Sullivan Twp., Tioga Co. Coll. by A. Sherwood, 1875.

856, Chemung, (upper,) near Mixtown, in Clymer Twp., Tioga Co. Coll. by A. Sherwood, 1875.

857, Chemung, (plants,) at head of Hill's creek, Charleston Twp., found in ledge of rock in upper Chemung, near house of C. Patridge, at bridge of Hill creek. Coll. by A. Sherwood, 1875.

858, Chemung, (upper,) 1 mile N. from Mansfield, Tioga Co. Coll. by A. Sherwood, 1876.

859, Chemung, (upper,) at the Narrows, 1 mile east from Franklindale, Bradford Co. Coll. by A. Sherwood, 1876.

860, Chemung, (upper,) near Mansfield, Tioga Co. Coll. by A. Sherwood, 1876.

861, Chemung, (upper,) in Sullivan Twp., Tioga Co. Coll. by A. Sherwood, 1876.

862, Chemung, east side of Tunangwant creek, near DeGolier, Bradford branch of Erie R. R., McKean Co. Coll. by C. A. Ashburner and W. A. Fellows, 1876.

863, Chemung, Big Shanty R. R. cut above Bradford division, N. Y. and E. R. R., McKean Co. Coll. by C. A. Ashburner and W. A. Fellows, 1876.

864, Chemung, on road from Lafayette to Big Shanty, on N. slope of Hill, McKean Co. Coll. by C. A. Ashburner and W. A. Fellows, 1876.

865, Hamilton, south side of Mahanoy ridge, in "Pole-cat," Mahanoy valley, from bottom bench of ore bed, top bed of Hamilton sandstone, Perry Co. From Geo. Vetermeyer's property, Duncannon Iron Co. Coll. by J. H. Dewees, 1877.

866, Chemung, east side of Juniata river near Newport, 400′ below Catskill red shale, (Fossiliferous limestone,) Perry Co. Coll. by J. H. Dewees, 1877.

867, Chemung, 1½ miles E. of No. 866, same bed, on E. bank of Juniata, (5½′ thick,) Perry Co. Coll. by J. H. Dewees, 1877.

868, Panama conglomerate (?), 3 miles N. W. of Union, about 2 miles N. of R. R., at Middletown quarry, Erie Co.

869, Panama Conglomerate (?), Le Boeuff's quarry, 4 miles below Union, on A. and G. W. R. R., 1 mile from Le Boeuff's station, on P. and E. R. R., Erie Co.

870, Specimens from strata *above* Salamanca conglomerate, on summit south of Salamanca, Cattaraugus Co., N. Y. Coll. by C. A. Ashburner, 1877.

871, Specimens from strata *below* Salamanca conglomerate, 1 mile N. of Salamanca, Cattaraugus Co., N. Y. Coll. by C. A. Ashburner, 1877.

872, Chemung, Nichols, Tioga Co., N. Y. Coll. by Robt. Howell, 1877.

873, Chemung, Meshoppen, Wyoming Co. Coll. by A. Sherwood, 1877.

874, do. Kane, McKean Co. Coll. by C. A. Ashburner and L. E. Hicks, 1878.

875, do. Centreville, Elk Co. Coll. by C. A. Ashburner, 1877.

876, do. railroad near Big Shanty, Bradford branch Erie R. R., McKean Co. Coll. by L. E. Hicks, 1877.

877, do. McKean Co. Coll. by A. W. Sheafer, 1878.

878, do. P. and E. R. R., between Ludlow and Wetmore, 88 miles from Erie, McKean Co. Coll. by L. E. Hicks.

879, do. Larabee Junction, Buffalo, N. Y. and Pa. R. R., McKean Co. Coll. by L. E. Hicks.

880, Chemung, Kane, Phila. and Erie R. R., McKean Co. Coll. by L. E. Hicks.

881, do. Bradford, McKean Co., street cutting at foot of hill. Coll. by L. E. Hicks.

882, do. Kinzua creek above water level, near W. line of McKean Co. Coll. by L. E. Hicks.

883, Chemung, Nichols, Tioga Co., N. Y. Coll. by Robt. Howell.

884, do. Lycoming Co., west line of Anthony Twp., between W. Marshal's and A. Stabler's. Coll. by A. Sherwood, 1877.

885, do. Potter Co., from R. R. cut at Roulette, Upper Chemung. Coll. by A. Sherwood, 1876.

886, do. Bradford Co., near Middletown, on Bently creek, from Upper Chemung. Coll. by A. Sherwood.

887, do. Potter Co., land of H. Holcomb, 1 mile below Harrison Valley, in the Upper Chemung. Coll. by A. Sherwood, 1876.

888, do. Potter Co., Sharon Twp., Upper Chemung. Coll. by A. Sherwood, 1876.

889, do. Potter Co., in R. R. cut at Roulette, Upper Chemung. Coll. by A. Sherwood, 1876.

890, do. Bradford Co., near East Liberty, Upper Chemung, and 40′ thick. Coll. by A. Sherwood.

891, do. Lycoming Co., near Linden. It lies next to a bed of iron ore in the top of the Chemung. Coll. by A. Sherwood.

892, do. Bradford Co., half way below Middletown and Smithfield, Summit Falls creek, Upper Chemung. Coll. by A. Sherwood.

893, do. Lycoming Co., at Logan station, land of P. R. Hays, from an iron vein. Coll. by A. Sherwood.

900, Catskill group, (*Fish*,) 5 miles N. E. of Mansfield, on Seeley creek branch of Timber creek, Tioga Co. Coll. by A. Sherwood, 1875.

901, From a bed of iron ore in the Upper Chemung, on lands of J. and E. Sellard. Coll. by A. Sherwood, 1875.

902, Catskill, (*Fish*.) 4 miles N. W. of Mansfield, Tioga Co. Coll. by A. Sherwood, 1876.

903, Catskill, (bottom,) 1 mile south from Auburn Centre, Susquehanna Co. Coll. by A. Sherwood, 1877.

904, Red Catskill, Lycoming Co., 1 mile above mouth of Indian Camp Run or Muncy creek, Jordan Twp. Coll. by A. Sherwood, 1877.

905, Red Catskill, Potter Co., west branch of Pine creek, West Branch Twp. Coll. by A. Sherwood.

906, Gray Catskill, Potter Co., 1¼ miles S. from Coudersport, on road to Homer, on top of mountain. Coll. by A. Sherwood.

$\frac{X}{1}$ Catskill, (white,) Sidling Hill tunnel, East Broadtop R. R., Claytown, Huntingdon Co. Coll. by C. A. Ashburner, 1875.

1000, Cuyahoga shale, tunnel of Brookfield Coal Co., in Trumbull Co, Ohio, near the State line, 2 miles S. W. of Sharon, Penna. The figures beneath "1000" represent the distance in feet below the Sharon coal. Coll. by I. C. White, 1876.

C1 Carboniferous lime shale and limestone from ½ mile N. W. of Harvey's 5 points, Congruity, Westmoreland Co. Coll. by H. D. Metzgar, 1875.

C2 Carboniferous limestone, from ½ mile N. W. of Harvey's 5 points, Congruity, Westmoreland Co. Coll. by C. E. Hall, 1875.

C3 Carboniferous, 4 miles from Cumberland, Greene Co. Roof shales of Waynesburg coal. Coll. by I. C. White.

C4 Carboniferous, on Muddy creek, ½ mile from Cumberland, Greene Co. Roof of Waynesburg coal. Coll. by I. C. White, 1875.

C5 Carboniferous, 1 mile east of Washington, on extension of Hempfield R. R., shale overlying Washington limestone, at 1st tunnel, E. of Washington. Coll. by I. C. White, 1875.

C6 Carboniferous, near Jno. Hoge's, Centretown, 1½ miles from Oak Forest, Greene Co. Coll. by I. C. White, 1875.

C7 Carboniferous, Mauch Chunk, from the neighborhood of Pine Grove, Schuylkill Co. Coll. by F. A. Genth, 1877.

INDEX.

Index A. to Palæontological Catalogue.

Anthony twp., ... 884
Auburn Centre, ... 903
Bellefonte, ... 203,210,301,302, 307
Bell's Mills, ... 506, 508
Bently creek, ... 886
Big Shanty, ... 863,864, 876
Blacklog creek, ... 508,509,510,511,512, 701
Bradford, ... 881
Brookfield Coal Co., ... 1000
Bushkill, ... 606
Bushkill creek, ... 608
Cambridge Iron Co. slope, ... 514
Campbell, D., ... 202, 214
Centretown, ... C6
Centreville, ... 875
Charlestown twp., ... 854
Congruity, ... C2
Coudersport, ... 906
Covington, ... 852
Craig's meadow, ... 801
Cumberland, ... C3, C4
De Golier, ... 862
Deitrich, L., ... 806
De Witt, ... 810
Dingman's Falls, ... 808
Dingman's Ferry, ... 808
Duncannon Iron Co., ... 835
East Liberty, ... 890
Elk run, ... 851
Falls creek, ... 892
Ferguson valley, ... 501
Franklindale, ... 859
Frankstown, ... 514, 515
Fredericksburg 209
Gainer, ... 851
Greenwood Furnace, ... 401
Harrison valley, ... 887
Harvey's Five Points, ... C1, C2
Hazardville, ... 604

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301–307, (III,) Utica slate, Hudson River slates.
400–401, (IV,) Oneida Conglomerate, Medina sandstone.
501–515, (V,) Clinton group.
601–610, (VI,) Onondaga, Water-lime, Lower Helderburg groups.
701–703, (VII,) Oriskany sandstone.
801–810, (VIII,) Upper Helderburg limestone, Marcellus, Hamilton shales.
850–893, (VIII,) Portage, Chemung group.
900–906, (IX,) Catskill group.
$\frac{x}{1}$, 1000, (X,) Waverly group.

CATALOGUE.

201, Trenton limestone, Kischicoquillis creek, just above mill-dam at Reedsville, Jack's Narrows, Mifflin Co. Coll. by A. Hale and C. E. Hall, 1875.
202, Trenton limestone, about seven miles above (S.W. of) Reedsville, north side of valley, opposite D. Campbell's house; upper portion of the limestone, Mifflin Co. Coll. by C. E. Hall, 1875.
203, Trenton limestone fossils, north side of creek, $\frac{1}{4}$ mile W. of Bellefonte, Centre Co. Coll. by C. E. Hall, 1875.

204, Trenton limestone, (Black river,) from Kischicoquillis creek, just above mill-dam at Reedsville, Jack's Narrows, Mifflin Co. Coll. by W. A. Fellows, 1875.

205, Trenton, (probably below Trenton,) just east of summit of road before reaching limekiln, north side of creek, Reedsville. Coll. by C. E. Hall, 1875.

206, Trenton limestone, from quarries at Martin's creek, Northampton Co. Coll. by C. E. Hall and W. A. Fellows, 1876.

207, Chazy, 1 mile S. W. of Martinsburg, in Morrison's cove, Blair Co. Coll. by F. Platt, 1875.

208, Calciferous, bottom of II, ⅛ mile E. of Williamsburg, on Juniata river, Blair Co. Coll. by F. Platt, 1875.

209, Black river limestone, ¼ mile E. of Fredericksburg, Blair Co. Coll. by R. H. Sanders, 1875.

210, Trenton limestone, Bellefonte, Centre Co. Coll. by W. A. Fellows, 1876.

211, Trenton limestone, from bluff on little Juniata river, above Tyrone forge and below covered bridge, (wagon road), Huntingdon Co. Coll. by W. A. Fellows, 1876.

212, Trenton limestone, from summit of hill, on road from Tyrone gap to Warrior's Mark, N. of Tyrone forge, Huntingdon Co. Coll. by W. A. Fellows, 1876.

213, Trenton limestone, from quarry on Copley Nearhoff's farm, 1½ miles N. of Tyrone forge, Huntingdon Co. Coll. by W. A. Fellows, 1876.

214, Trenton limestone, (top,) Douglass Campbell's, 2 miles from Belleville, Mifflin Co. Coll. by C. E. Billin.

301, Utica slate, Bellefonte, Centre Co. Coll. by C. E. Hall, 1875.

302, Lime shale, between Utica slate and Trenton limestone, Bellefonte, Centre Co. Coll. by C. E. Hall, 1875.

303, Slates III, 2½ miles S. W. Henrietta station, 2852′, bench of Tussey mountain, Bedford Co. Coll. by R. H. Sanders, 1875.

304, Hudson river, 1½ miles S. W. Henrietta mines, Blair Co. Coll. by R. H. Sanders, 1875.

305, Hudson river, Henrietta, on back of Leather Cracker anticlinal, Bedford Co. Coll. by R. H. Sanders, 1875.

306, do. No. 1, Blair Co. Coll. by R. H. Sanders, 1875.

307, Utica slate, Bellefonte, Centre Co. Coll. by W. A. Fellows, 1876.

400, Oneida Conglomerate, from Schuylkill Gap, Port Clinton. Coll. by H. M. Chance, 1874.

401, Medina, white sandstone, IV, Broad mountain, at Greenwood furnace, Huntingdon Co. Coll. by C. E. Billin, 1876.

501, Clinton shale, above fossil ore, from McKee's ore bank, N. E. of McKee's house, Ferguson valley, 7 miles N. W. of Lewistown, Mifflin Co. Coll. by A. Hale and C. E. Hall, 1875.

502, Clinton shale, above fossil ore, opening N. W. of McKee's house, about 1 mile; same horizon as 501. Coll. by A. Hale and C. E. Hall, 1875.

503, Clinton shale, above fossil ore from Matilda furnace, Mifflin Co. Coll. by A. Hale and C. E. Hall, 1875.

504, Clinton shale, above ore, Orbisonia, Huntingdon Co. Coll. by A. Hale and C. E. Hall, 1875.

505, Clinton shale, McKee's ore bank, Mifflin Co. Coll. by G. H. Christian, C. A. Ashburner, and A. Hale, 1874.

506, Clinton shale, (lime,) 2 miles S. W. of Bell's Mills, Blair Co. Coll. by C. E. Hall, 1875.

507, Clinton shale, Matilda furnace. Coll. by W. A. Fellows and C. E. Hall, 1875.

508, Clinton shale, N. of Blacklog creek, Orbisonia, Huntingdon Co. Coll. by C. E. Hall and W. A. Fellows, 1875.

509, Clinton shale, crinoid stems, 10 to 12 feet below ore opening, N. side of Blacklog creek, Orbisonia, Huntingdon Co. Coll. by W. A. Fellows and C. E. Hall, 1875.

510, Clinton shale, about 140 feet above base of the Clinton do. Coll. by W. A. Fellows and C. E. Hall, 1875.

511, Clinton shale, about 80 feet above base of the Clinton do. Coll. by W. A. Fellows and C. E. Hall, 1875.

512, Clinton shale, 60 feet above base of the Clinton do. Coll. by W. A. Fellows and C. E. Hall, 1875.

513, Clinton shale, (fossil ore,) Jos. Patton's limestone ore bank, ore above limestone, near Hollidaysburg, Blair Co. Coll. by R. H. Sanders, 1875.

514, Clinton shale, 1 mile N. W. of Frankstown, Cambria Iron Co.'s slope, Blair Co. Coll. by R. H. Sanders, 1875.

515, Clinton shale, roof slate of Frankstown bed. Coll. by R. H. Sanders, 1875.

601, Lower Helderberg, from 1½ miles south of Rock Hill furnace, Orbisonia, Huntingdon Co. Coll. by A. Hale and C. E. Hall, 1875.

602, Lower Helderberg, from field back of sand quarry, near Rock Hill furnace, Orbisonia. Coll. by C. E. Hall, 1875.

603, Lower Helderberg, back of Orbisonia, slope, sandy ridge, Huntingdon Co. Coll. by A. Hale and C. E. Hall, 1875.

604, Lower Helderberg, Mansing's quarry, near Hazardville, Carbon Co. Coll. by W. A. Fellows and F. A. Genth, 1875.

605, Lower Helderberg, near Orbisonia, slope of Royer Ridge, Huntingdon Co. Coll. by C. E. Hall and W. A. Fellows, 1875.

606, Lower Helderberg, near Bushkill, Pike Co., from river slope of Hog's Back ridge, near road to Shawnee, Wallpack Bend. Coll. by W. H. Fellows, 1876.

607, Lower Helderberg, VI, from quarry north of Tyrone city, Blair Co. Coll. by C. E. Hall and W. A. Fellows, 1876.

608, Lower Helderberg, north slope of Hog's Back ridge, below mouth of Big Bushkill creek, Monroe Co. Coll. by C. E. Hall and W. A. Fellows, 1876.

609, Lower Helderberg, Delaware river, below Shawnee, Monroe Co. Coll. by C. E. Hall and W. A. Fellows, 1876.

610, Lower Helderberg, (VI,) from A. B. Miller's farm, Warrior ridge, Barree Twp., Huntingdon Co. Coll. by C. E. Billen, 1876.

701, Oriskany sandstone, Sandy ridge sand quarry, S. of Blacklog creek, Orbisonia, Huntingdon Co. Coll. by C. E. Hall, 1875.

702, Oriskany, (lime-sand,) southern extremity of Royer ridge, Orbisonia. Coll. by C. A. Ashburner and C. E. Hall, 1875.

703, Oriskany, Royer ridge, N. of road crossing at Orbisonia, Huntingdon Co. Coll. by C. E. Hall, 1875.

801, Hamilton group, 1½ miles north of Craig's meadow, at Marshall's Falls, on Marshall's creek, Monroe Co. Coll. by H. M. Chance, 1874.

802, Hamilton, Aughwick creek, just below bridge, at Saddle-back gap, Orbisonia, Huntingdon Co. Coll. by C. A. Ashburner and C. E. Hall, 1875.

803, Hamilton shale, Saddle-back ridge, Orbisonia, Huntingdon Co. Coll. by C. E. Hall, 1875.

804, Hamilton, from Marshall's creek, Monroe Co. Coll. by W. A. Fellows and F. A. Genth, Jr., 1875.

805, Hamilton shale, Bell's Mills, Blair Co. Coll. by C. E. Hall, 1875.

806, Hamilton shale, Levi Detrich's farm, ½ mile N. of Marshall's Falls, Monroe Co. Coll. by W. A. Fellows and F. A. Genth, Jr., 1875.

807, Hamilton, Geo. Kintner's farm, 1 mile S. W. from Marshall's Falls, Monroe Co. Coll. by W. A. Fellows and F. A. Genth, 1875.

808, Hamilton, Dingman's creek falls, near Dingman's Ferry, Pike Co. Coll. by W. A. Fellows, 1876.

809, Hamilton, along canal, near (N. of) Port Jervis, Orange Co., N. Y. Coll. by C. E. Hall and W. A. Fellows, 1876.

810, Upper Helderburg VIII, (lower portion,) south slope of Hogs-back ridge, on road to Shawnee, by way of DeWitt's, Monroe Co. Coll. by W. A. Fellows, 1876.

850, Chemung group, Lawrenceville, Tioga Co. Coll. by A. Sherwood, 1875.

851, Chemung, near mouth of Elk run, 2 miles W. of Gainer, 20 to 40 rods above bridge over Pine creek, Tioga Co. Coll. by A. Sherwood, 1875.

852, Chemung, (upper,) near Covington, Covington Twp., Tioga Co. Coll. by A. Sherwood, 1875.

853, Chemung, (upper,) at Tioga village, Tioga Co. Coll. by A. Sherwood, 1875.

854, Chemung, (upper,) from Charleston Twp. Coll. by A. Sherwood, 1875.

855, Chemung, (upper,) Sullivan Twp., Tioga Co. Coll. by A. Sherwood, 1875.

856, Chemung, (upper,) near Mixtown, in Clymer Twp., Tioga Co. Coll. by A. Sherwood, 1875.

857, Chemung, (plants,) at head of Hill's creek, Charleston Twp., found in ledge of rock in upper Chemung, near house of C. Patridge, at bridge of Hill creek. Coll. by A. Sherwood, 1875.

858, Chemung, (upper,) 1 mile N. from Mansfield, Tioga Co. Coll. by A. Sherwood, 1876.

859, Chemung, (upper,) at the Narrows, 1 mile east from Franklindale, Bradford Co. Coll. by A. Sherwood, 1876.

860, Chemung, (upper,) near Mansfield, Tioga Co. Coll. by A. Sherwood, 1876.

861, Chemung, (upper,) in Sullivan Twp., Tioga Co. Coll. by A. Sherwood, 1876.

862, Chemung, east side of Tunangwant creek, near De-Golier, Bradford branch of Erie R. R., McKean Co. Coll. by C. A. Ashburner and W. A. Fellows, 1876.

863, Chemung, Big Shanty R. R. cut above Bradford division, N. Y. and E. R. R., McKean Co. Coll. by C. A. Ashburner and W. A. Fellows, 1876.

864, Chemung, on road from Lafayette to Big Shanty, on N. slope of Hill, McKean Co. Coll. by C. A. Ashburner and W. A. Fellows, 1876.

865, Hamilton, south side of Mahanoy ridge, in "Pole-cat," Mahanoy valley, from bottom bench of ore bed, top bed of Hamilton sandstone, Perry Co. From Geo. Vetermeyer's property, Duncannon Iron Co. Coll. by J. H. Dewees, 1877.

866, Chemung, east side of Juniata river near Newport, 400′ below Catskill red shale, (Fossiliferous limestone,) Perry Co. Coll. by J. H. Dewees, 1877.

867, Chemung, 1½ miles E. of No. 866, same bed, on E. bank of Juniata, (5½′ thick,) Perry Co. Coll. by J. H. Dewees, 1877.

868, Panama conglomerate (?), 3 miles N. W. of Union, about 2 miles N. of R. R., at Middletown quarry, Erie Co.

869, Panama Conglomerate (?), Le Boeuff's quarry, 4 miles below Union, on A. and G. W. R. R., 1 mile from Le Boeuff's station, on P. and E. R. R., Erie Co.

870, Specimens from strata *above* Salamanca conglomerate, on summit south of Salamanca, Cattaraugus Co., N. Y. Coll. by C. A. Ashburner, 1877.

871, Specimens from strata *below* Salamanca conglomerate, 1 mile N. of Salamanca, Cattaraugus Co., N. Y. Coll. by C. A. Ashburner, 1877.

872, Chemung, Nichols, Tioga Co., N. Y. Coll. by Robt. Howell, 1877.

873, Chemung, Meshoppen, Wyoming Co. Coll. by A. Sherwood, 1877.

874, do. Kane, McKean Co. Coll. by C. A. Ashburner and L. E. Hicks, 1878.

875, do. Centreville, Elk Co. Coll. by C. A. Ashburner, 1877.

876, do. railroad near Big Shanty, Bradford branch Erie R. R., McKean Co. Coll. by L. E. Hicks, 1877.

877, do. McKean Co. Coll. by A. W. Sheafer, 1878.

878, do. P. and E. R. R., between Ludlow and Wetmore, 88 miles from Erie, McKean Co. Coll. by L. E. Hicks.

879, do. Larabee Junction, Buffalo, N. Y. and Pa. R. R., McKean Co. Coll. by L. E. Hicks.

880, Chemung, Kane, Phila. and Erie R. R., McKean Co. Coll. by L. E. Hicks.

881, do. Bradford, McKean Co., street cutting at foot of hill. Coll. by L. E. Hicks.

882, do. Kinzua creek above water level, near W. line of McKean Co. Coll. by L. E. Hicks.

883, Chemung, Nichols, Tioga Co., N. Y. Coll. by Robt. Howell.

884, do. Lycoming Co., west line of Anthony Twp., between W. Marshal's and A. Stabler's. Coll. by A. Sherwood, 1877.

885, do. Potter Co., from R. R. cut at Roulette, Upper Chemung. Coll. by A. Sherwood, 1876.

886, do. Bradford Co., near Middletown, on Bently creek, from Upper Chemung. Coll. by A. Sherwood.

887, do. Potter Co., land of H. Holcomb, 1 mile below Harrison Valley, in the Upper Chemung. Coll. by A. Sherwood, 1876.

888, do. Potter Co., Sharon Twp., Upper Chemung. Coll. by A. Sherwood, 1876.

889, do. Potter Co., in R. R. cut at Roulette, Upper Chemung. Coll. by A. Sherwood, 1876.

890, do. Bradford Co., near East Liberty, Upper Chemung, and 40′ thick. Coll. by A. Sherwood.

891, do. Lycoming Co., near Linden. It lies next to a bed of iron ore in the top of the Chemung. Coll. by A. Sherwood.

892, do. Bradford Co., half way below Middletown and Smithfield, Summit Falls creek, Upper Chemung. Coll. by A. Sherwood.

893, do. Lycoming Co., at Logan station, land of P. R. Hays, from an iron vein. Coll. by A. Sherwood.

900, Catskill group, (*Fish*,) 5 miles N. E. of Mansfield, on Seeley creek branch of Timber creek, Tioga Co. Coll. by A. Sherwood, 1875.

901, From a bed of iron ore in the Upper Chemung, on lands of J. and E. Sellard. Coll. by A. Sherwood, 1875.

902, Catskill, (*Fish*,) 4 miles N. W. of Mansfield, Tioga Co. Coll. by A. Sherwood, 1876.

903, Catskill, (bottom,) 1 mile south from Auburn Centre, Susquehanna Co. Coll. by A. Sherwood, 1877.

904, Red Catskill, Lycoming Co., 1 mile above mouth of Indian Camp Run or Muncy creek, Jordan Twp. Coll. by A. Sherwood, 1877.

905, Red Catskill, Potter Co., west branch of Pine creek, West Branch Twp. Coll. by A. Sherwood.

906, Gray Catskill, Potter Co., 1¼ miles S. from Coudersport, on road to Homer, on top of mountain. Coll. by A. Sherwood.

$\frac{x}{1}$ Catskill, (white,) Sidling Hill tunnel, East Broadtop R. R., Claytown, Huntingdon Co. Coll. by C. A. Ashburner, 1875.

1000, Cuyahoga shale, tunnel of Brookfield Coal Co., in Trumbull Co, Ohio, near the State line, 2 miles S. W. of Sharon, Penna. The figures beneath "1000" represent the distance in feet below the Sharon coal. Coll. by I. C. White, 1876.

C1 Carboniferous lime shale and limestone from ½ mile N. W. of Harvey's 5 points, Congruity, Westmoreland Co. Coll. by H. D. Metzgar, 1875.

C2 Carboniferous limestone, from ½ mile N. W. of Harvey's 5 points, Congruity, Westmoreland Co. Coll. by C. E. Hall, 1875.

C3 Carboniferous, 4 miles from Cumberland, Greene Co. Roof shales of Waynesburg coal. Coll. by I. C. White.

C4 Carboniferous, on Muddy creek, ½ mile from Cumberland, Greene Co. Roof of Waynesburg coal. Coll. by I. C. White, 1875.

C5 Carboniferous, 1 mile east of Washington, on extension of Hempfield R. R., shale overlying Washington limestone, at 1st tunnel, E. of Washington. Coll. by I. C. White, 1875.

C6 Carboniferous, near Jno. Hoge's, Centretown, 1½ miles from Oak Forest, Greene Co. Coll. by I. C. White, 1875.

C7 Carboniferous, Mauch Chunk, from the neighborhood of Pine Grove, Schuylkill Co. Coll. by F. A. Genth, 1877.

INDEX.

Index A, to Palæontological Catalogue.

Anthony twp., ... 884
Auburn Centre, ... 903
Bellefonte, ... 203,210,301,302, 307
Bell's Mills, ... 506, 508
Bently creek, ... 886
Big Shanty, ... 863,864, 876
Blacklog creek, ... 508,509,510,511,512, 701
Bradford, ... 881
Brookfield Coal Co., ... 1000
Bushkill, ... 606
Bushkill creek, ... 608
Cambridge Iron Co. slope, ... 514
Campbell, D., ... 202, 214
Centretown, ... C6
Centreville, ... 875
Charlestown twp., ... 854
Congruity, ... C2
Coudersport, ... 906
Covington, ... 852
Craig's meadow, ... 801
Cumberland, ... C3, C4
De Golier, ... 862
Deitrich, L., ... 806
De Witt, ... 810
Dingman's Falls, ... 808
Dingman's Ferry, ... 808
Duncannon Iron Co., ... 835
East Liberty, ... 890
Elk run, ... 851
Falls creek, ... 892
Ferguson valley, ... 501
Franklindale, ... 859
Frankstown, ... 514, 515
Fredericksburg 209
Gainer, ... 851
Greenwood Furnace, ... 401
Harrison valley, ... 887
Harvey's Five Points, ... C1, C2
Hazardville, ... 604

Hempfield, ... C5
Henrietta mine, No. 1, ... 306
Henrietta station, ... 303,304, 305
Hill's creek, ... 857
Holcomb, H., ... 887
Hollidaysburg, ... 513
Homer, ... 906
Howell, R., ... 872, 883
Indian Camp run, ... 904
Juniata river, ... 866,867
Kane, ... 874, 880
Kintner, G., ... 806, 807
Kinzua creek, ... 882
Kischicoquillas creek, ... 201, 204
Lafayette, ... 864
Larabee Junction, ... 879
Lawrenceville, ... 850
Le Bœuff quarry, ... 869
Linden, ... 891
Logan, ... 893
Ludlow, ... 878
Mahony ridge, ... 865
Mahony valley, ... 865
Mansfield, ... 858,860,900, 902
Mansing's quarry, ... 604
Marshall's creek, ... 801, 804
Marshall's Fall, ... 801,806, 807
Marshall, W., ... 884
Martinsburg, ... 207
Martin's creek, ... 206
Matilda Furnace, ... 503, 507
Mauch Chunk, ... C7
McKee's ore bank, ... 501,502, 505
Meshoppen, ... 873
Metzger, H. D., ... C1
Middleton quarry, ... 868
Middletown, ... 886, 892
Miller, A. B., farm, ... 610
Mixton, ... 856
Morrison's cove, ... 207
Muddy creek, ... C4
Muncy creek, ... 904
Narrows, ... 859
Nearhoff, C., ... 213
Newport, ... 866, 867
Nichols, ... 872, 883
Oak Forest, ... C6
Orbisonia, ... 504,508,512,601,603,605,701-703,802,803
Patridge, C., ... 857
Patton, J., ore bank, ... 513
Pine creek, ... 905

Pine Grove, ... C7
Polecat, ... 865
Port Clinton, ... 400
Port Jervis, ... 809
Reedsville, ... 201,202,204,205
Rock Hill Furnace, ... 601, 602
Roulette, ... 885, 889
Royer Ridge, ... 702, 703
Saddleback gap, ... 802
Saddleback ridge, ... 803
Salamanca, ... 870, 871
Schuylkill gap, ... 400
Seeley creek, ... 900
Sellard, J. and E., ... 901
Sharon, ... 1000
Sharon twp., ... 888
Shawnee, ... 606,609, 610
Sidling Hill tunnel, ... x/1
Smithfield Summit, ... 892
Stabler, A., ... 884
Sullivan twp., ... 855, 861
Timber creek, ... 900
Tioga, ... 853
Tunangwant creek, ... 862
Tussey mountain, ... 303
Tyrone, ... 607
Tyrone Forge, ... 211, 213
Tyrone Gap, ... 212
Union, ... 868
Vetermeyer, G., ... 865
Walpack Bend, ... 606
Warrior's Mark, ... 212
Warrior Ridge, ... 610
Washington, ... C5
Westmore, ... 878
Williamsburg, ... 208

Index B, to Numbers 4265 to 8975.

Abbottstown, ... 6349
Adair, ... 6234
Adamsburg, ... 6535
Adams road, ... 6057
Alburtis, . . 5038,5042,5043,5046,6400,6403,6404,6406–6408,6410,6416–6420,6486
Alexander, R., ... 8573
Allen's Lane, ... 6256
Allentown, ... 5022–5026,5035,6405,6505
Allentown Iron Co., ... 6478,6482
Allentown Rolling Mill Co. mine, ... 6405
Allison, Judge, land, ... 6132–6134
Altoona, ... 6682,6684–6687

Anderson farm, ... 7708
Anderson, J. and J., ... 5247–5299
Aughey, S., farm, ... 6577
Anthony's Nose, Mt. tunnel, ... 8455–8459,8461,8462,8464
Antrim mines, ... 6324
Ashbourne station, ... 5998–6003
Ashbridge, R., farm, ... 8097
Ashbridge, R., house, ... 8094–8097
Ashhurst, J., farm, ... 7910
Atkinson Mill, ... 5780–5782
Attleboro', ... 4457–4473
Bailey, G., ... 7081
Bailey's quarry, ... 6710
Bailey's run, ... 8376,8382
Bailey's Springs, ... 8373,8381
Bair, J. E., house, ... 6388
Baker's quarry, ... 6682
Baker, S. C., ... 6684–6687
Bald Friars, ... 4294
Bald Hills, ... 4296
Baltimore Central R. R. Junction, ... 8197,8198
Barber's mine, ... 6407,6420
Barger quarry, ... 6847
Baris, J., quarry, ... 5237
Barnitz farm, ... 6625
Barr and Radcliff mine, ... 8916,8917
Barren Hill, ... 6159,7270–7277
Barren Hill road, ... 6153
Bartlett land, ... 5860
Barto, ... 6303
Bartville, ... 6362,8573
Basom, C., farm, ... 6604
Bastian, E., mine, ... 6466
Bauman farm, ... 6832
Bauman, H. L, mine, ... 6830
Baurer, ... 6530
Beam, J. W., quarry, ... 6715,6717
Beatty farm, ... 7180
Beatty quarry, ... 7181,7182
Beaver Falls, ... 5099–5106
Bechtel's ore opening, ... 8536,8537
Bechtel shaft, ... 8295,8308,8319,8321,8323,8325,8327,8329
Beirchoff, W., house, ... 8332
Beirs' Gap, ... 6573
Beitler, A., land, ... 6313
Belleville, ... 5230–5236
Bellevue, ... 6367,6368
Bell's Mills, ... 6292,6732,6733
Benchoff, J., ... 8542
Benchoff's Springs, ... 8387
Benchoff, Wm., ... 8544

Benchoop farm, ... 8359
Benezette, ... 8749-8786,8874-8880,8910,8919-8925
Benezette Twp., ... 8949-8951
Buena Vista, ... 8378,8388,8389
Bergdoll, L., ... 8230-8232
Berkey, P., quarry, ... 6716
Berkley Springs, ... 8549
Berry Mountain gap, ... 6603
Berry, R., ... 8221,8222
Berwyn, ... 8003-8028
Berwyn Station, ... 7091
Belthayres' Station, ... 5592-5622
Bethlehem pike, ... 6132-6134,6284
Bewell, J., house, ... 6282
Biddle, C., farm, ... 8055
Biddle, Wm., land, ... 5827
Biery's Bridge, ... 5034
Biery, J., mine, ... 6505
Big Shanty, ... 5111
Bingham's house, ... 4275
Bingham, J., ... 8361,8364,8365
Bingham's shaft, ... 8533
Bingham's vein, ... 8531
Bird-in-Hand tavern, ... 7757
Birmingham, ... 6329,6688-6692
Black Log Gap, ... 6550,6565-6572
Black Log Mountain, ... 6540-6542,6552
Black Log Valley, ... 5011
Black Rock Road, ... 7865-7866
Blairsville, ... 6770,6771,6772
Bloomfield mine, ... 6669
Blue Bell Road, ... 6146
Blue Mountain, ... 6632
Blue Point, ... 8400,8401
Blue Ridge, ... 8366-8369
Boalsburg, ... 5225,5226
Bolivar, ... 6734,6735
Boot Road, ... 8106-8107
Bortz, A., mine, ... 6479
Bowers, W., paper mill, ... 8251
Bowman's Hill, ... 5067
Boyer, H., mine, ... 6508
Brady's Bend, ... 6760
Brady's Bend Iron Co., ... 6760
Brandy Camp Hotel, ... 8970
Brandy Camp P. O., ... 8952,8963,8967
Brandywine creek, ... 8254-8291,8558,8561
Brandywine creek, East branch, ... 8239-8253
Brandywine Iron Works, ... 6385
Breakneck Mountain, ... 8410,8418
Breinig's mine, ... 6444,6445,6453

Breinig, F., mine, ... 5040,6449,6454,6458,6464
Breinig's quarry, No. 1, ... 6434
Breinig's quarry, No. 2, ... 6432
Breinig, T., mine, ... 5039,6442,6443
Breinigsville, ... 5039,
5040,6401,6402,6427,6432,6434,6439,6442,6446,6449,6453,6454,6458,6464
Bretz farm, ... 6403
Bridgeport, ... 6630,6631,6848-7079,7100-7105
Bridgeton, ... 5087
Bridgewater Paper Co., property, ... 8229
Bridgewater Station, ... 8221,8229,8230,8232
Bringhurst's mill, ... 5798,5799,8800-8802
Brinton's Bridge, ... 8256,8264-8268
Broad Axe Road, ... 6146
Broad Mountain, ... 5224,5243,5246
Brockport, ... 8889,8926-8932
Brockway, C., farm, ... 8954
Brockwayville, ... 8956
Brogan farm, ... 7911
Broison, S., & Co., ... 6804
Brookfield Station, ... 8285
Brown, J., land, ... 6054
Brown's mine, ... 6499
Brown and Mosgrove land, ... 6729
Brown, Orr & Neale, ... 6767
Brown, P., farm, ... 6770
Brown, S., ... 6751
Brownsburg, ... 5067,5078,5079
Brownsville, ... 5247,5314,5367-5374,6786
Brush Ridge, ... 5240,5241
Bryansville, ... 8587,8588
Bryn Mawr, ... 7701,7757,7852,7865,7866
Bryn Mawr Station, ... 7853-7864,7867-7877
Buck Hotel, ... 5247-5313
Buck Ridge, ... 5305-5313
Buena Vista, ... 8372,8375,8377
Buffalo Hills, ... 6621,6649
Buffalo Mills, ... 6754
Bunting's Bridge, ... 7965,7966
Bush Ridge, ... 5121
Bustleton pike, ... 5827
Burges, H., ... 4379,4380
Burnett Starch factory, ... 8216
Burnett, W., house, ... 8264
Burnley, C., ... 8215
Burn's Lane bridge, ... 6033
Burnt Cabins, ... 6579-6586
Byberry road, ... 5499-5546
Caldwell's Landing, ... 8476,8477
Caledonia, ... 8881-8888,8973,8974
Caledonia tunnel, ... 8787-8790

Calico Print Works, ... 5827
Cambria Iron Co.'s drift, ... 6330
Cambria Iron Co.'s slope, ... 5088–5090
Cambridge, ... 6369,6373,6391,6392,7082,7084,7085,7090
Campbell, A., quarry, ... 5230–5233
Campbell & Barrett, ... 6756
Campbell, D., ... 5235,5236
Campbell, J., ... 8560
Camp lot, ... 5116
Cannonsburg, ... 6788
Carbon Iron Company, ... 6412,6448,6476,6477
Carman, C., house, ... 8578
Carrollton, ... 6696
Cartersville furnace, ... 6704
Castle Hill Mills, ... 7881,7888,7889
Catasauqua, ... 5027,5029,5033,6500,6504,6507–6513,6532
Cedar Grove Mills, ... 6071–6074,6080,6081
Cedar Hollow, ... 8056–8077
Centre church, ... 6628
Centre furnace, ... 6782
Centreville, ... 6756,7997–8002,8576,8584
Chadd's Ford, ... 8274–8280,8282,8558,8561
Chamberlain, J. S., farm, ... 8953,8964,8967
Charles, J., ... 8596
Charles, M., farm, ... 7096
Charlestown, ... 6399
Chelten avenue, ... 5998
Cheltenham P. O., ... 6047
Chelton Hills station, ... 5955–5970
Chemical Works, ... 8445–8448
Cheney, G., ... 8145
Cheney's station, ... 8145,8146
Chert ore-bank, ... 6549,6565
Chester creek, ... 8121–8238
Chestnut Hill, (Lancaster co.), ... 4266
Chestnut Hill, (Philadelphia), ... 6146,6284
Chewton, ... 6806,6812–6815
Childs, J., house, ... 5971–5980
Chrisman farm, ... 6405,6406
Chub run, ... 4657,4778
Church Road, ... 7878,7880,7957,7958,7991
Church Road station, ... 5971–5980
Churchville, ... 5247
City bridge, ... 4401,4456
City Line station, ... 6007
Clark, E., ... 5120
Clark, G. W., ... 6713
Clark, J., ... 8563,8564
Clark, W., land, ... 5862
Claytonville, ... 6299
Claywater's quarry, ... 8397–8399

Clear Ridge, ... 5012,5015
Cleever, J., quarry, ... 6144
Clements, ... 8547
Clermont, ... 8359–8363,8380
Clermont House, ... 8360–8362
Clinton Mills, ... 8778
Clymer Iron Co., ... 6522
Cobb's creek, ... 7878–7996
Cochran's Mills, ... 6768
Cold Spring, ... 8416–8425
Coleraine Iron Co., ... 6406,6480
Columbia avenue bridge, ... 7563–7579
Colwell, J. A., ... 6748,6749
Comley, J., grist mill, ... 6135
Compassville, ... 6348
Condersport quarry, ... 6323
Connellsville, ... 6702
Conshohocken, ... 7170–7211,7792
Conshohocken dam, ... 7212
Cook, E., ... 8592
Cook's Mill, ... 6786
Cook, P., farm, ... 6610
Cooney's inn, ... 8521
Cope, C., quarry, ... 6344
Cope, E. T., property, ... 8247
Copeville, ... 8245,8246,8249,8250
Cornog, M. D., farm, ... 8056–8074
Cornog, M. D., quarry, ... 8056–8060
Corydon twp., ... 8622–8633,8815–8820,8894–8899
Cove run, ... 8968
Cox's valley, ... 5243
Cozzen's Hotel, ... 8439–8442
Craig farm, ... 6636,6637
Crallville, ... 8580
Crane Iron Co., ... 6447,6451,6452,6462,6465
Crawford, J. Y., ... 7232–7243
Crescentville, ... 6047,6052,6057,6062
Croton, ... 8504,8505
Crow, A., farm, ... 6783
Crow, Judge, ... 6785
Crow's mill, ... 6784
Crozer, S. A., ... 8234,8235
C. & P. D. R. R., ... 4280,4293,4307,8593
Curtin mine, ... 5225,5226
Custer City, ... 5108
Dailey, J., quarry, ... 8411–8413
Dale Forge, ... 6300,6302–6310
Dana, S., ... 4381–4400
Daney mine, ... 6493,6496
Darby creek, ... 7991
Darlington, J., farm, ... 8173,8178–8183,8189

Darlington station, ... 8163,8184-8187
Davis Lane bridge, ... 6033
Davis quarry, ... 7221-7226
Davisville, ... 6718
Dayton, ... 6741
Dean's mine, ... 6296
Decker's Point, ... 6747
De Golier, ... 5117,5118
De Graff's second tunnel, ... 8503
Delano's house, ... 8406
Del. & B. B. R. R., ... 5409-5413,5417-5448
Del. & B. B. R. R. bridge, ... 4629
Del. & B. B. R. R. quarry, ... 5334-5347
Delaware river, ... 4310-4456
Delaware State Line, ... 8291
Demmer, J., ... 4310-4351
Denny's mill, ... 6805
Dick's Hill, ... 6606,6607,6634-6637,6639
Dickson, H. S., quarry, ... 7520
Dickson ore farm, ... 6692
Dillsburg, ... 4265,4274,4309,6833-6837
Dinnon's Dock, ... 8444
Dinsmore's house, ... 8392-8395
Dobson, J., house, ... 7505
Dobson, J., quarry, ... 7517
Doe run, ... 8571
Donnelly's Mill P. O., ... 6658
Doty, G. M., ... 6771
Dougherty, Wm., ... 6575
Doughtman farm, ... 6635
Douglass ore bank, ... 6559
Downingtown, ... 6361,8239-8241
Doyle's Ferry, ... 6358
Driftwood, ... 8647-8677,8714-8748
Dull, A. J. & Co., ... 6762-6764
Dull & Bradley's sand mine, ... 6536
Dunderberg mountain, ... 8475-8477
Earnest, C., house, ... 7133,7134
Earnest, C., quarry, ... 7127-7131,7134
Earnest & Freedley, quarry, ... 7166-7199
East Branch of Brandywine creek, ... 8239-8253
East Hibron, ... 6319,6320
East Penn Junction, ... 5022-5026
East Rock Hill, ... 5080,5081
Echman, M., ... 6573
Edge Hill, ... 5907-5925,6126,6129,6282
Edge Hill P. O., ... 6283
Edge Hill road, ... 5935
Edwards, E. Mrs., land, ... 7085
Egan, D., house, ... 7221
Elizabethtown, ... 8594

Ellicott's run, ... 8641–8646,8692–8713
Emaus, ... 6487–6496,6531
Embreeville, ... 6337,6340
Emilie P. O., ... 5414–5416
Emory, J., property, ... 6047–6051
Emporium, ... 8604–8621
Emslie estate, ... 4923–4932
Ennisville, ... 5238
Enterprise Mills, ... 7487,7488
Eppley, M., farm, ... 6386
Erb, J. B., ... 8594
Esopus Island, ... 8395,8396
Etna Iron Works, ... 6674
Evans, E., Mrs., ... 8014–8018
Evans' land, ... 5845
Fagundas, ... 8862–8867,8902
Fairfield, ... 4271,8292–8331,8528–8530,8538,8539,8546
Fairmount, ... 6888
Fairmount Park, ... 7523–7700
Fairmount Water Works, ... 7580–7700
Fairview school-house, ... 6394,8562
Fairville, ... 8565
Falls creek, ... 8377
Fallsington, ... 4379,4380
Falls of Schuylkill, ... 7503–7520
Falmouth, ... 6379
Farmington, ... 6514,6515,6520
Farrandsville, ... 6698,6700
Faust, G., farm, ... 8965,8969
Fayette furnace, ... 6778
Feasterville, ... 4457–4473,5300–5304,5314,5334,5348–5366,5417–5448
Fenton, E., land, ... 5729–5750
Fenton, W., land, ... 5664–5679
Ferguson, quarry, No. 1, ... 6709
Ferndale, ... 5027
Felter, C., mill, ... 5546–5591
Fisher, J., property, ... 6052
Fisher's Lane bridge, ... 6084
Fishing creek, ... 6316
Fishkill, ... 8409
Five Points, ... 6751
Flat Rock tunnel, ... 7413–7453
Fleck's farm, ... 6689
Fleck's ore-bank, ... 6824,6825
Fleetwood Iron Company's mine, ... 6519
Fleetwood Lodge mills, ... 5848–5860
Fleming, D., land, ... 5837
Fleming, R., mine, ... 5227
Flower, J., land, ... 8233,8238
Flowers' mill, ... 5409–5413
Flowertown, ... 6284

Flowertown road, ... 6153,6163–6174
Flushing school-house, ... 4949–4957
Fogel, W. B., mine, ... 6448
Fogel, W. B., quarry, No. 1, ... 6436
Fogel, W. B., quarry, No. 2, ... 6435
Fogelsville, ... 5041,
5046,6409,6425,6426,6429,6455–6457,6459–6461,6467–6469,6473
Forbes, ... 6664
Forests, ... 8956
Forest of Dean mine, ... 8449–8452
Fort Clinton, ... 8453,8454,8460
Fort Littleton, ... 6575,6578
Fort Montgomery, ... 8445–8454
Fort Washington, ... 6109–6125,6132–6134
Founce, S., mill, ... 6101
Fountain Dale, ... 8294
8305,8334,8339,8341,8342,8344,8345,8349,8351,8353,8354,8358
Foxburg, ... 8900
Fox Chase and Newtown railroad, ... 5449–5734
Fox Chase road, ... 5761–5773,5798
Fox farm, ... 6845
Fox, Miss, ... 6045
Fox, T., ... 8968
Fox township, ... 8960
Frankford, ... 6088,6093–6108,6285,6286
Frankford pike, ... 5827
Frankford quarries, ... 6286
Franklin forge, ... 6674
Franklin furnace, ... 4277,8599,6000–6003
Frankstown, ... 5088–5090,6330
Frankstown Slope mine, ... 6665
Frantz quarry, ... 6424
Friends' creek, ... 8318
Fredericksburg, ... 6676
Freedley, Dr., farm, ... 7170–7179
Freemont Place, ... 8515–8519
Freiburg, ... 8961
Freidensville, ... 6527–6529
Freihill, ... 8595
Freemont P. O., ... 8560
Fuller estate, quarry, ... 5884
Fuller's mine, ... 4265
Fulton, A. H., ... 6769
Fulton House, ... 4299,4308
Furguson, H., ... 7098
Furnace run, ... 6703
Gaagus, Mrs., farm, ... 7878
Gackenbach mine, ... 6465
Gackenbach quarry, ... 6428
Galbrarth's farm, ... 6693
Ganoga Lake, ... 6726

Gap, ... 6368
Garrett's house, ... 6365
Garrison, ... 8433–8437
George's creek, ...
George, P., ... 6731
Georgetown, ... 33[illegible],7098,8522,8568,8569
Germantown road, ... 6246,6255,6256
Gibson's fording bridge, ... 8242
Gibson's mill, ... 6618
Gibson's rock, ... 6620
Gibson township, ... 6660–6677,8714–8748
Girard avenue bridge, ... 7662
Glad Hills, ... 8534
Glen Fern mills, ... 6239,6245
Glen Lock, ... 6378
Glen Mills, ... 8146
Glen Mills station, ... 8162,8163,8166
Glick, C., mine, ... 6495
Goat Hill, ... 5056–5067
Godfrey & Co., land, ... 6153
Goff farm, ... 8973,8974
Gordon farm, ... 5802–5824
Gordon's mill, ... 5802–5817,5825,5826
Gorman, A., farm, ... 6742,6743
Gorman, W., ... 8862–8867
Gosherd's house, ... 8602
Gosherd tunnel, ... 8600,8601,8603
Gotherd tunnel, ... 4277
Graff, P., ... 6754
Graham, R. M. C., ... 6790
Grahamville, ... 8577
Gramnis, J., mine, ... 6681
Graphite mine, ... 5314–5333
Great Valley Baptist church, ... 7997–8002
Green Lane station, ... 6037–6046
Green, Marquis & Johnson, ... 6820
Green's mine, ... 6360
Green Tree tavern, ... 7816,7817
Green Valley, ... 6336,6343
Greenville, ... 6737
Greenwood furnace, ... 5224,5244,5246
Greenwood ore-bank, ... 5232
Griffith, D. K., ... 6739,6740
Griffith, N., house, ... 8031,8032
Griswold, J., ... 8211
Gross farm, ... 6535
Grove quarry, ... 5010
Grove township, ... 8641–8646,8692–8713,8868–8873
Grubb, C. B., ore-bank, ... 4266–4268
Guest, N., quarry, ... 8571
Guke property, ... 7506

Gulf creek, ... 7753–7756
Gulf mills, ... 7701–7757
Gulf road, ... 7823–7852
Guth, C., mine, ... 6507
Guth, E., quarry, ... 6512
Guth, F., mine, ... 6476
Guth's station, ... 6511,6512
Guymard, ... 6328
Gwynedd tunnel, ... 5120
Haines, land, ... 4294,4296
Half Falls mountain, ... 6587,6588,6612,6613,6648
Hall, H., ... 6398
Hall, R., farm, ... 6791
Hallowell, J., land, ... 5623–5633
Hallowell's mill, ... 5623–5663,5680–5721
Hallowell, W. T., land, ... 5634–5663
Hamilton, G. W., property, ... 7276,7277
Hamilton, M. R., ... 6746
Hamilton paper mill, ... 7278–7280
Hamilton, W., ... 7270
Hamlin twp., ... 8678–8691
Hampton Point, ... 8404,8405
Harbison & Walker mine, ... 8910,8912,8918
Harden, J. H., ... 6297,6298
Harman's blacksmithshop, ... 4309
Harmony twp., ... 8857–8867,8905–8907
Harper, J., farm, ... 7998
Hartel, J., land, ... 5867–5870
Hartman, Jos., ... 5099–5106
Hartman's quarry, ... 5099–5106
Hartville avenue, ... 6235–6237
Harvey, T., land, ... 6336
Harvistraw, ... 8497–8502
Harvistraw light-house, ... 8501,8502
Haverford road, ... 7878,7879
Haybinger, J., mill, ... 7099
Haycock, ... 8335,8340,8355,8356
Haycock Hill, ... 5084–5086
Hayes, J. W., ... 6724
Hazlett, S. C., quarry, ... 6773
Hiany, A., farm, ... 7706,7707
Hebron P. O., ... 6316–6318
Heffner, C., mine, ... 6519
Heins, J., farm, ... 6697
Heins, H., quarry, ... 6425,6426
Held, A., brickyard, ... 6460,6461
Hellertown, ... 6523–6529
Hempfield station, ... 8121,8126–8128
Henderson's farm, ... 5802
Henderson, R., land, ... 5825,5826
Henrietta P. O., ... 6672

Henry Clay Furnace, ... 4278
Hensingerville, ... 5036,5037,6400,6404,6407,6416,6420,6493-6485
Herbst, Dr., quarry, ... 6441
Hertzog, L., and Leiss Mine, ... 6486
Hess, J., ... 7096
Hibbs, J., ... 4894-4898
Hickory Station, ... 8857-8867
Hiddleson, J., blacksmith shop, ... 8242*a*
Hiddleson, J. L., ... 4242*a*
High Street Road, ... 8109-8114
Hill, Wm., ... 8589
Hill Valley, ... 6544-6548,6553
Hindman quarry, ... 6843,6844
Hitner marble quarry, ... 7701-7705
Hobach, D., ... 8567
Hoffer, J., ... 5113,5114
Hoffman, J. A., land, ... 6084
Hoffman's mills, ... 7955,7956
Hoffman, S., house, ... 8273
Hoggsett, Walt & Co., ... 6779-6781
Hollidaysburg, ... 6667,6668,6680
Hollidaysburg Gap Ore Co., ... 6666
Holmesburg, ... 5876
Holmesburg Junction, ... 5878
Homer, ... 6739,6740
Houck & Gramniss' mine, ... 6808,6812,6814
Honeybrook, ... 7087
Hoover, R., mine, ... 6673
Hooverville, ... 6713
Hope Furnace, ... 6809,6811
Hopewell bank, ... 6364
Hopewell middle mine, ... 6377
Horton Twp., ... 8889,8926-8932,8952-8954,8963,8968
House of Correction quarries, ... 5449,5884-5891
Hoving, E. A., farm, ... 8524,8525,8527,8532
Howe Twp., ... 8900
Howellville, ... 8003-8028
Hubert Run, ... 8793,8794
Huckelberry Ridge, ... 6504
Huff farm, ... 5238
Hughes' house, ... 7728,7729
Hulmeville, ... 4649-4656,4868-4884
Hulmeville Cemetery, ... 4867
Hulmeville Dam, ... 4780-4866
Huston, ... 5239
Hyde Farm, ... 8964,8970
Iokesburg, ... 6629
Indian Cave Hotel, ... 6224
Indian Rock Hotel, ... 6207,6213
Ingham, W. A., mine, ... 6313
Ingram, H. D., grist and saw-mill, ... 8246

Iona Island, ... 8461,8465,8466
Irenberg, S. B., ... 6675
Iron Ridge, ... 6633
Ironton, ... 5045,6331,6498-6502
Ironton Co.'s mine, ... 6331
Ironton R. R. Co.'s mine, No. 1, ... 6503
Ironton R. R. Co.'s mine, ... 6502
Ironton R. R. Co.'s quarry, ... 6501
Isett, G. D. & Bro., ... 6674
Isett, M., farm, ... 6691
Jacks' Mountain, ... 6822
Jacks' Run, ... 8347,8350
Jacksonville, ... 6773
Jacobs' Creek Station, ... 6701
Janney, S., ... 4507-4617,4629
Jay Twp., ... 8787-8790,8973,8794
Jenkinson, W., ... 8570
Jenkintown Junction, ... 5926-5954
Jenkintown Road, ... 5926,5935
Jenners' Cross Road, ... 6715,6716
Jericho Hill, ... 5069
Jersey Shore, ... 6703,6706,6709-6711
Jimmey's Cove, ... 8479-8484
Joanna Station, ... 6297
Jobst mine, ... 6531
Johnsburg, ... 8933,8934
Johnson, A., ... 5314-5333
Johnson, B. D., house, ... 8244
Johnson run, ... 8958,8959
Johnson, W., ... 4885-4893
Johnstown cement bed, ... 6717,6768,6838
Jones, F., ... 7748-7753
Jones farm, ... 8141
Jones mine, ... 6297,8913-8915
Jones property, ... 6052
Jones quarry, ... 7363-7365
Jones, W. L., house, ... 7491-7495
Jordan's bridge, ... 6506
Juniata furnace, ... 6643,6644
Juniata Land Co.'s mine, ... 6664
Justice, Geo., ... 4975-5009
Kaiser farm, ... 6408
Kane, ... 8935-8948
Kane's quarry, ... 8958,8959
Keck's mine, ... 6490
Keen, S. A., ... 4872-4890
Kehm, S., mine, ...
Keiger, G., farm, ... 7100-7105
Keilholtz, ore opening, ... 8541
Kelly, J., ... 8242
Kelly's station, ... 6736

Kelly, Wm., ... 6582
Kemper, N., ... 7092
Kennett Square, ... 8556,8590
Kent property, ... 5935
Kepner ridge, ... 8357
Keystone Coal and Manufacturing Co.'s quarry, ... 6722
Keystone paper-mills, ... 7922
Kidd's Point, ... 8476,8477
Kier Bro., ... 6730
Kier Bros'. mine, ... 6792–6799
King's dock, ... 8443,8444
King of Prussia, ... 7729
Kinzua creek, ... 8678–8691,8795–8820,8894–8899
Kirkland station, ... 8107
Kitchen's lane, ... 6225–6263
Kittanning, ... 6728,6752,6753,6766,6767
Kline's Corners, ... 6521
Kline, D. K., mine, ... 6521
Kline, J., mine, ... 6510
Kline, Jobst & Steinheimer's mine, ... 6488
Knauertown, ... 6393,6396,6397,7083,7088
Knowlton station, ... 8208,8220,8221
Koch & Ritter mine, ... 6489
Koch, W., mine, ... 6477
Kohler, M., quarry, ... 6497
Kohn's Hook, ... 8438,8444
Krömmlich & Lichtenwallner's mine, ... 5041,6452
Kuhn, Mrs., quarry, ... 6423
Kurtz, widow, farm, ... 6527
Kyholtz farm, ... 8331
Kyholtz shaft, ... 8331
Kyler's Corners, ... 6821,8960
Labarre, L. B., ... 5078
Lafayette, ... 5116
Lafayette station, ... 6287,6288,7270–7277,7278–7331
Lafayette twp., ... 8795–8814
Lagrange, ... 5845–5847
Lagrange Cath. church, ... 5827
Lagrange road, ... 5834
Lambertville, ... 5047–5062,5071–5078
Lamborn's house, ... 4279
Lamont, ... 6321
Lanbach, S., quarry, ... 5045
Lancasterville road, ... 6146
Landisburg, ... 6638
Landis' store, ... 6308
Langhorne, ... 5305–5313
Langhorne station, ... 5409–5413
Lanigan, J., mine, ... 6409
Laros, J., mine, ... 6462
Lattice bridge, ... 6274

Lauden, T., house, ... 7285–7291
Lauer's mine, ... 6412
Laughlin, F. B. & H., ... 6765
Laughlin, F. B. & H. farm, ... 6744
Laughlinstown, ... 6791
Laurel Hill cemetery, ... 7513
Laurel run, ... 8881–8888
Lee, D., ... 5782,5783
Leedom farm, ... 7420–7424
Lehigh Iron Co., ... 6411,6413,6466
Lehigh Valley Iron Co., ... 6415,6463
Lehigh Valley R. R., ... 5027–5035
Lemont Furnace ore, ... 6775–6777
Lenape station, ... 8251,8255,8256
Lenni, ... 6333–6335
Lenni Junction, ... 8187,8204,8205
Lewis, P., house, ... 8077
Lewis, S., mine, ... 6517
Lexington Ave., ... 6246,6255,6256
Licking creek valley, ... 6577
Lick run, ... 6698–6700
Lichtenwallner, L., mine, ... 6419,6451
Lichtenwallner, W., quarry, ... 6437
Liggett's station, ... 6381–6384
Ligonier, ... 6789–6791
Limekiln turnpike, ... 5907–5925
Lippincott, J. B., house, ... 5680–5724
Liston Bro., ore bank, ... 6712
Listonville, ... 6712
Little Furnace, ... 5223
Little Toby creek, ... 6821
Little, W., farm, ... 8252,8254
Liver, J., ... 4276
Lock No. 9, ... 6353
Lock Haven, ... 6699
Lock Ridge, ... 5043,6408
Locust Grove, ... 6342
Logan furnace ore-bank, ... 6544–6546
Logan's quarry, ... 8551
Logansport, ... 6757–6759
Long Pond, ... 6726
Long Run, ... 6839
Lost Creek Ridge, ... 6538
Lower Catasauqua, ... 5028
Loy farm, ... 6638
Loy's Hill, ... 6638
Lucke's quarry, ... 6727
Ludwig's old mine, ... 6403
Lukens, M., house, ... 6146,6149
Lyons, ... 6519

Lyttle, W., property, ... 6236,6237
Macnamara farm, ... 6222,6223
Magargee paper-mill, ... 6201,6224
Mahoning furnace, ... 6748,6749
Mahony Ridge, ... 6597,6598,6610,6642,6646,6647
Mahony Valley, ... 6597,6598,6608–6610
Malrem, ... 8107,8108
Manayunk, ... 7476–7502
Manayunk bridge, ... 7476
Manheim station, ... 6379
Manheim township, ... 7092
Manitu mountain tunnel, ... 8467–8474
Manning & Lewis quarry, ... 6680
Manor Hill, ... 5239*a*,5242
Manorville, ... 6762–6764
Maple Grove mill, ... 6484
Mareks' mine, ... 6411
Markelsville, ... 6649
Marshall, W., farm, ... 6741
Marshall road, ... 7947,7948,7951
Martickville, ... 8597
Martin's corner, ... 8572
Maryland line, ... 8366–8369
Marysville, ... 6632
Maryville, ... 6650–6652,6654,6655,6660,6661,6663
Massey, R. J., ... 5222,5239*a*,5242
McAlvy's fort, ... 5222,5223,5237
McAllister's farm, ... 8962,8963
McAtlee, ... 6158*b*–6158*e*
McAuley, J., ... 6761
McCall's ferry, ... 6354
McCall's house, ... 8521,8526
McCall's mill, ... 6338
McCarthy's ore-bank, ... 6823
McCarthy's quarry, ... 6826–6828
McConkey bridge, ... 8251–8253
McCordis quarry, ... 6819
McCoy, J., ... 6163–6175
McDivitt's mill, ... 8297,8309
McFarland, E., ... 7745–7747
McIntyre's station, ... 6704
McKee's Gap, ... 6666
McMullin farm, ... 6690
McVeytown, ... 6536
Meadow branch, ... 8549
Meadow run, ... 6787
Meadville, ... 6375,6376
Mechling's mines, ... 6415
Mehaffey & McGill quarry, ... 6757–6759
Mell's lease, ... 8529,8530
Mell's mine, ... 8528

Mendenhall, A., ... 8565
Mendenhall & Chamberlin, ... 6803
Merion Square, ... 7865–7866
Merkel, Mrs. J., mine, ... 6514
Mertztown, ... 6514–6517,6520,6521
Meyer, J., farm, ... 6654,6655
Meyersdale, ... 6721–6723,6725
Mickley's farm, ... 6831
Middle creek, ... 8302,8364,8365
Milford, ... 5087
Mill Creek, west branch, ... 5295,5299
Mill Hill, ... 6586
Miller, A. B., ... 5228,5245
Miller, Charles, mine, ... 6459
Miller farm, ... 6649
Miller, J., ... 8281
Miller's mill, ... 5780,5781
Miller, W., mine, ... 6518
Millerstown, ... 6640,6641,6671
Millerstown Iron Co., ... 6450
Millersville, ... 6656,6657
Millsburg, ... 8905,8908,8909
Millview, ... 6727
Milroy, ... 5243
Milton Station, ... 8402,8403
Mineral Hill, ... 6290
Miney Run, ... 8340,8356
Mitchell, J., farm, ... 6605
Moffit's quarry, ... 6816
Mogeetown, ... 7106–7169
Mogee's quarries, ... 7106–7117
Monroe Furnace, ... 5227
Mons Ways, ... 6347
Montebello Narrows, ... 6606,6607
Monterey, ... 8332–8358,8372–8374,8376,8377,8381,8382,8387,8553–8555
Monterey Springs, ... 4275
Moon, Wm., quarry, ... 4352–4378
Moorestown, ... 7086
Morehead's, ... 8957
Morehead fireclay, ... 8971
Morgan, A. P., property, ... 8227,8228
Morgan farm, ... 8923–8925
Morgan's Station, ... 8226,8227
Morris, Mrs., farm, ... 7818
Morris avenue, ... 7852
Morrison's Dam, ... 8622–8633
Morristown, ... 6356
Morrisville, ... 4310–4456,5375,5408
Mory, G. W., farm, ... 6528
Mory, M., mine, ... 6529
Moser mine, ... 6446

Moser, O., quarry, ... 6439
Mountain ore bank, ... 6557
Mount Jackson, ... 6819
Mount Johnson Island, ... 4270
Mount Misery, ... 8378,8384
Mount Moriah Cemetery, ... 7965,7988–7990
Mount Moriah Cemetery Co.'s property, ... 7974–7981
Mount Patrick, ... 6551,6603
Mount Pleasant, ... 5071–5074,5078
Mount Union, ... 6575
Mount Vernon Furnace, ... 6702
Mower, G., mine, ... 4269
Mull & Hagenbach's mine, ... 6408
Munroe, S., ... 6755
Murphy Hotel, ... 7504
Musselman's ore opening, ... 8535,8538,8539,8946
Musselman tract, ... 8543
Mayo colliery, ... 8933,8939
Nankwell, W., mine, ... 6538
Nantmeal, ... 7080
Neeley, D., land, ... 5399–5408
Neild, Mrs., ... 8224
Neshaminy creek, ... 4457–4974
Neshaminy falls, ... 6807
Neshaminy Methodist church, ... 4896–4898
New Athens, ... 6842
Newberrytown, ... 6386
New Bethlehem, ... 6293,6294,6697,6761
New Bloomfield, ... 6622–6625,6633,6636,6637,6642–6644,6646,6647
New Bridgeville, ... 8579
New Brighton, ... 6803
New Buffalo, ... 6649
New Buffalo mountain road, ... 6587
Newburg, ... 9406
New Castle, ... 6809–6811,6820
New Geneva, ... 6783–6785
New Hope, ... 5083–5070
New Hopewell, ... 6359
Newmeyer farm, ... 6404
Newport, ... 6590–6596,6599–6602,6611,6614,6621,6653
Newportville, ... 4899–4918
Newportville dam, ... 4899–4922
New Providence, ... 4269
New Rochester, ... 6804
New Street, ... 6159
New Texas, ... 4295,4300,6478
Newton & Bishop's saw-mill, ... 6322
New Waterford, ... 6626,6627
New Windsor, ... 8566,8598
N. Y. branch of P. R. R., ... 4974
N. Y. and E. R. R., ... 5111

Nippenose valley, ... 6708
Norristown branch of P. and R. R. R., ... 6287,6288,7106–7502
Northampton Iron Company, ... 6442,6445,6446
Northeast branch of N. P. R. R., ... 5892–5926
North Fork of Pine creek, ... 6729
North Penn R. R., ... 5079–5083,5120,5892,5927–6046
N. P. R. R. Company's land, ... 5929
Oakford, ... 4630–4648b
Oakford dam, ... 4618–4629,4655,4656
Oak Grove furnace, ... 6790
Oak Lane station, ... 6010–6033
Octoraro creek, ... 7099,8570
Ohio Pyle falls, ... 6787
Old Furnace road, ... 8292
Olean, ... 5107,6327
Oleweiler, house, ... 8575
Oliphant furnace mine, ... 6774
Oberholzer, M., land, ... 6370
Orbisonia, ... 5013,5014,5115,5544–5549,5551–5557,6559–6572
Orbisonia slope, ... 6562,6563
Oyster's quarry, ... 8955
Painter's bridge, ... 8256,8261,8262
Palmer, J., ... 6747
Palmer, C., property, ... 7960–7962
Paoli, ... 6346
Paoli road, ... 8029,8055
Paoli road station, ... 8029
Paper-mill station, ... 5487–5498
Parkmount woolen factory, ... 8206
Parksburg, ... 6366
Passmore, George, ... 8548
Passmore, I., ... 8557
Patterson's mine, ... 6670
Patton, Jos., ore-bank, ... 5091,5098
Patton station, ... 8108
Patton, W. R. and W. P., farm, ... 6656,6657
Paul & Bro., ... 6579–6581
Paxton, P., ... 4474–4531
Peach Bottom, ... 6350,8526,8586
P. B. R. R., ... 8587,8588
Peach Bottom slate quarry, ... 4270
Peck place, ... 8404,8405
Peckskill, ... 8478–8485
Peekskill bay, ... 8478
Pen Mar, ... 8379,8383
Pennell, J., farm, ... 8190–8192
Pennelton station, ... 8193–8195
Pennepack creek, ... 5449–5891
Pennepack print-works, ... 5862–5867
Pennington Ridge, ... 6332
Pennock, G., grist-mill, ... 5877

Penna. Canal., ... 4352–4378,4381,5375–5398
Penn. R. R., ... 7091,7853–7864,7867–7877,8078,8239
Perry Furnace, ... 6617
Perry Furnace Ridge, ... 6617
Perryville, ... 6705
Perseverance Mills, ... 7476
Peterman, G., farm, ... 6597,6598,6608,6609
Peters' creek, ... 8523
Philadelphia, ... 7332–7412,7476–7502
P. and B. C. R. R., ... 8196–8238,8280
P. and B. B. R. R., ... 5992
Philadelphia Co.'s mine, ... 4275
P. and E. R. R., ... 8647
Philadelphia Iron Co.'s mine, ... 8520
P. and N. R. R., ... 6054
P. and R. R. R., ... 7503–7522,7563–7655
P. and R. Iron Co.'s mine, ... 6421,6422
Pine creek, ... 6709
Pine Creek Furnace, ... 6728
Pine Creek Furnace Co.'s land, ... 6766
Pine Hill, ... 8360–8363
Pine Town Road, ... 6126
Pipe Aqueduct Bridge, ... 6246
Piper, H. A., land, ... 6153
Pittsburgh Coal, Coke, and Iron Co.'s quarry, ... 6719
Pleasant Grove, ... 4294,4305,4306
Pleasant Grove school-house, ... 6389,6390
Pleasantville road, ... 8903,8904
Plymouth R. R., ... 6143
Pocopson school-house, ... 6339
Pocopson station, ... 8260
Pole Cat Valley, ... 6597–6599,6608,6610
Polipet island, ... 8407,8403
Poole land, ... 6080,6081
Poor-house, (Oxford and Lower Dublin,) 5871–5875
Port Royal, ... 7278–7331
Potter, G., ore bank, ... 6787
Potts' Landing, ... 7106–7211
Poughkeepsie, ... 8397–8401
Powder-house hill, ... 8426–8428
Powder mill, ... 6093–6285
Powder mill road, ... 6101
Power farm, ... 6800
Power quarries, ... 6801
Powers & Weightman's Chemical Works, ... 7515
Pratt land, ... 5375–5398
Praul, F., ... 4565–4617
Presbyterian ford station, ... 8211,8212
Pricetown, ... 6522
Prince farm, ... 7281–7284
Prince's soapstone quarry, ... 6287,7292–7294

Putney, S., ... 6745
Putneyville, ... 6745,6746
Pyle's Bridge, ... 8280,8286–8288
Quakertown, ... 5080–5083
Queen Ann's run, ... 5415–5416
Raccoon Valley, ... 6658,6659
Race street, ... 5876
Radnor, ... 7792
Ranch gap, ... 6708
Ranch's mills, ... 6708
Rawlinsville, ... 4303
Reading Coal and Iron Co. mine, ... 5038
Reading pike, ... 6159
Rebecca mines, ... 6672
Red Bank, ... 6295
Red Bridge, ... 6263–6274
Red Lion, ... 6421,6422
Red ore bank, ... 6671
Red run, ... 8389–8391
Reed, J., ... 8292
Reefer, J., farm, ... 6738
Reichert quarry, ... 6846
Reimersburg, ... 6841
Reinhart's mine, ... 6413
Relyea's house, ... 8392–8394
Rex', Squire, land, ... 6158*b*–6158*e*
Reynolds, M. R., ... 6752–6753
Rhia, J. C., ... 6737
Richmond, ... 6750
Ridge road, ... 7477–7502,7510–7517,7520
Ridgway, ... 8791,8890–8893
Riley, P., farm, ... 8306
Rittenhouse street, ... 6274–6281
Ritter's mine, ... 6498
Riversmith farm, ... 6619,6620
Roads' place, ... 5417–5448
Roads, S., ... 5348–5366
Roaring Spring, ... 6669,6677,6678
Roberts Iron Co., ... 6481
Roberts' road, ... 7823
Robinson, H., ... 6537
Robinson's house, ... 6198,6201–6206
Robinson's land, ... 5735–5750
Robinson's store, ... 6628
Rock City, ... 5107,5109,5110
Rockdale station, ... 8205,8208,8209
Rock Hill, ... 5079,5082
Rock Hill gap, ... 5011
Rock Hill Iron Co., ... 6549
Rockland Lake Ice Co.'s dock, ... 8506,8507
Rockland steamboat landing, ... 7579,7580–7700

Rocks, The, ... 6282
Rocky ridge, ... 5021
Rodger's run, ... 6078
Rodman furnace quarry, No. 1, ... 6677
Rodman furnace quarry, No. 2, ... 6678
Rogers, W. D., ... 6778
Rohrer, Mrs., house, ... 6010–6013
Romichs, R., mine, ... 6478
Roop, A. A., ... 8566
Rouser's house, ... 8343
Rowland's mill dam, ... 6082
Ruch & Bro.'s mine, ... 6500
Ruck's ice house, ... 8404,8405
Rupp's hill, ... 8300
Rupp's mill, ... 8298
Rural Village, ... 6738
Russell house, ... 8295,8301
Russell's copper mine, ... 8296,8311,8315,8370,8371
Russel farm, ... 8308,8319,8321,8323,8325,8327,8329
Ryder house, ... 7483
Saddleback ridge, ... 5115
Sadsburyville, ... 6387,6388
Safe Harbor, ... 6703
Segarsville station, ... 8255
St. Joseph's convent, ... 6159,6163
Salina station, ... 6730,6792–6799
Saltillo, ... 6822
Saucon Iron Co., ... 6524–6529
Sand dock, ... 8407–8408
Sand run road, ... 6146
Sand's R. hotel, ... 6207,6213–6223
Sandy Hollow, ... 6618,6620
Sandy ridge, ... 5013,5014,6562,6563,6564
Sarah Furnace quarry, ... 6683
Saylor Hill quarry, ... 6721,6723
Schantz, H., mine, ... 6440,6447
Schantz mill, ... 6430,6431
Scharl, D., estate quarry, ... 6300,6301,6304–6307
Schenk's station, ... 4974
Schneider, D., mine, ... 6526
Schollenberger, W. house, ... 5860
Scholl, J. D. & Co., mine, ... 6463
School lane, ... 7507–7509
School Lane station, ... 7507
Schroaders, ... 8293
Schuyler farm, ... 6617
Schuylkill Falls bridge, ... 7522–7562
Schuylkill river, ... 7100–7700
Scotsville, ... 6558
Seam, C., mine, ... 6492
Second Street turnpike, ... 6064

Sedden's mill, ... 5798–5802
Seelock run, ... 8594
Seidel, J. B., ... 6650,6651
Seiger, S., mine, ... 6509
Seigersville, ... 6508
Seisholtzville, ... 5038,6298,6312
Sellers, J., ... 7928
Sellers, H., ... 5035
Seltzer, A., ... 6135–6137
Senger, J., house, ... 8338,8346,8352
Shade Gap, ... 6533,6534,6574
Shade, J. A., Dr., farm, ... 6533
Shade valley, ... 6533,6537
Shankweiler's lot, ... 6485
Sharon Centre, ... 6222
Shaw & Newport bone factory, ... 5893–5900
Shawmont avenue, ... 6239,6246
Shawmont station, ... 3750–3752
Shawmut, ... 8966
Shay, R., land, ... 5845–5847
Sheiver mine, ... 6532
Shelmire's mill, ... 5476–5487
Sherman creek, ... 6630,6631
Shultz, A., land, ... 6311
Shur's Lane, ... 6263,6274
Shiner, J. K. & Bro., farm, ... 6817,6818
Shippen twp., ... 8604–8621
Ship's Lane, ... 7278,7412
Shoemaker, S. A., ... 6696
Shoner, W., ... 8335
Short Mountain mines, ... 6674
Shovert's saw-mill, ... 8333,8347,8350
Sickel, A., farm, ... 6635
Siegfried's bridge, ... 5044
Simpson, J., ... 6750
Singer, J., house, ... 8336
Sing Sing, ... 8509–8514
Sinking valley, ... 6329,6688,6689,6692,6693
Sinnemahoning, ... 8634–8646,8668–8673,8692–8713
Sinnemahoning, Portage, ... 8604–8621
Sipler, G. W., ... 4974
Sixty-third street, ... 7943
Slabtown, ... 6729
Slenderdale ridge, ... 6573
Sligo Furnace, ... 6840
Smelzer, G., ... 8585
Smith grove, ... 6576
Smith, H., farm, ... 6618
Smith, J. & D. mine, ... 6450
Smithport, ... 6742,6743
Smith, R., ... 4896–4898

Smith, R., farm, ... 6772
Smith's station, ... 6831
Smith, T., farm, ... 7991,7992
Smith's quarry, ... 6429
Smoyer, W., quarry, ... 6427,6433
Smyser, D. H. mine, ... 6530
Snivley, J. N., copper mine, ... 8303,
8312,8314,8316,8317,8322,8324,8326,8328,8330
Snyder Knob, ... 6579–6585
Snyder, S., farm, ... 6694
Snyder twp., ... 8957,8971,8972
Snydersville, ... 6471
Soapstone quarry, ... 6287,7292–7294
Solisbury, ... 6724
Somerset, ... 6714
Somerton, ... 5348–5366
Somerton station, ... 5417–5448
South Bald Eagle mountain, ... 6707
South Bend, ... 6731
South Valley Hill, ... 8003–8028
Spangler, J., ... 8567
Spanogle, W., farm, ... 6626
Spread Eagle, ... 7997–8002
Sprenkle's mine, ... 6832
Springfield, ... 6364,6377,6778,7093–7095
Springfield avenue, ... 6224,6238
Springfield Furnace, ... 6681
Springfield mines, ... 6675
Springfield station, ... 7332–7412
Spring Hill, ... 4298
Spring Mill, ... 7227,7228
Spring Mill station, ... 7244–7269
Staatsburg dock, ... 8392–8394
Stacker, D., house, ... 7808
Starch factory, ... 8216
State Lick, ... 6755
State Road bridge, ... 5884
Stauffer's farm, ... 8598
Stein, H., mine, ... 6455–6457
Steininger, J., farm, ... 6409
Steller, Dr., land, ... 6088
Stewardson Furnace, ... 6744
Stewart, ... 5223
Stewart's land, ... 6340
Stewart ore bank, ... 6561
Stewart, R. W., ... 6088
Stewart's run, ... 6706
Stiles, T., quarry, ... 6606,6607
Stirck, K. L., ... 4868–4871
Storm King Granite Co.'s quarry, ... 8414,8415
Storm King mountain, ... 8514,8515

Stoyestown, ... 6720
Strawberry mansion, ... 7523–7579
Street road station, ... 8142–8144
Stricklerville, ... 8550
Stricklerville, ... 8557
Stubbs, Dr., ... 4303,4304
Sugar Loaf mountain, ... 8444
Sugar run, ... 8622–8633,8821
Sugars bridge, ... 8242a
Summers' farm, ... 7950
Summontown Church, ... 6372
Supples, T., house, ... 8027
Susquehanna river, ... 4301,6588,6589
Susquehanna rolling-mill, ... 4280–4291
Swan Inn, ... 6374
Swartz, ... 6491
Swatara creek, ... 5113,5114
Swayne, B., quarry, ... 8552
Tacony creek, ... 5926,6047–6108
Tally Ho pumping station, ... 8678–3691,8795–8814
Tape Worm R. R., ... 8307,8310,8337,8348,8385 8386
Tape Worm R. R. viaduct, ... 4271
Target Rock, ... 8426–8432
Tarrytown, ... 8515–8519
Tatham's shaft, ... 6688
Taylor, ... 4958–4967
Taylor farm, ... 8109–8111
Taylor, I., farm, ... 6534
Temple Iron Co., ... 6404,6414,6519–6521
Templeton, ... 6729
The Rocks, ... 6282
Third Hill mountain, ... 8549
Thomas Iron Co., ... 6491
Thomas Iron Co.'s mine, ... 6400,6455,6483
Thomas Iron Co.'s quarry, ... 6410,6448,6513
Thompson's ore mine, ... 6676
Thorpe's lane, ... 6187,6189,6201–6206
Three Springs, ... 6558
Tionesta, ... 8822–8856,8901,8904
Todd P. O., ... 6829
Tollinger's hotel, ... 6300–6310
Tomlinson, ... 4539–4540
Tomkins' Cove Lime Co.'s wharf, ... 8508
Tomkins' Cove limekilns, ... 8497–8500
Toms creek, ... 8299,8313,8346
Topton, ... 6518
Townsend, J. P., ... 4649–4654
Treichlersville, ... 6311
Tressler, A., ... 8366
Tressler, A., house, ... 8304,8318
Trevorrow, W., quarry, ... 6718

Trevose, ... 5247,5367–5374
Trexlertown, ... 6401
6402,6423,6424,6428,6436,6437,6440,6441,6447,6465,6477,6479,6481
Trout, Wm., ... 6578
Tunangwant creek, ... 5117,5118
Turner, Wm., ... 8212–8214
Tuscarora mountain, ... 6640,6641,6645,6658,6659
Tussey mountain, ... 5222
Tussey Mt. ore range, ... 5239a,5239
Tygart quarries, ... 6802
Tyson, E., farm, ... 8222
Udree mine, ... 6522
Ulster park, ... 8392–8394
Underwood mine, ... 4274
Unicorn, ... 4302
Uniontown, ... 6775–6777,6779–6781
Upland, ... 6395,8559
Upland station, ... 8230,8234,8238
Ursina, ... 6719
Valley creek, ... 8243
Vandergrift, W., ... 4933–4948
Vane, P., ... 6371
Vanport borough, ... 6800–6802
Verplank's Point, ... 8406–8408,8503
Verplank's Point cove, ... 8486–8488
Verplank's Point lime quarry, ... 8489–8496
Valley Green, ... 6135
Valley Green hotel, ... 6239
Vanartsdalen's quarry, ... 4457,4473,5305–5313
Verree, J. P., land, ... 5761–5774
Verree, J. P., mill, ... 5761–5779
Wagner, S., farm, ... 6695
Wakefield, ... 4304
Walbert's station, ... 6472–6474
Walker, M., house, ... 7799
Wallen P. O., ... 7089
Walton, J., land, ... 5555–5585
Walton, J., ... 5725–5728
Walton quarry, ... 6848–7079
Wampum, ... 6817,6818
Warren, ... 6314,6315,6325,6326
Warrior's Mark, ... 6332
Warrior's Ridge, ... 5228,5229,5245
Warwick Rock, ... 7088
Washington Lane, ... 5955–5970
Waterford Narrows, ... 6626
Water, J., farm, ... 7229–7231
Watson, H., land, ... 6228
Watson, J., ... 4532–4538,4541–4569
Watson, J., house, ... 8315,8370
Watson, land, ... 6132–6134

Waynesboro', ... 8389–8391,8524,8325,8327,8332
Waynesboro' branch R. R., ... 8591
Waynesburg, ... 7087
Weaver, B., mine, ... 6511
Weaver, C., farm, ... 6639
Weiser, C. H., ... 8579
Welch, A., ... 6146,6153
Welch road bridge, ... 5900–5906
Wellen, P., ... 6539
Wellsboro', ... 6324
Welsey Chapel, ... 8906,8907
Welty, quarry, ... 6833–6837
Wendell, A., land, ... 5827
Wenner, E., ... 6506
Wentz, T. J. & J., ... 6132–6134
Werner & Reinhart's mine, ... 6482
Wescoeville, ... 6430,6431,6438,6476,6480
West Chestor, ... 6345,6365,7001,8078,8107,8109,8121
West Chester turnpike, ... 6341
W. C. branch of P. R. R., ... 8107
W. C. & Ph. R. R., ... 6334,7965,8121–8205
West Conshohocken, ... 7212–7226,7229–7243
West End Mills, ... 7953,7954
West Laurel Hill Cemetery, ... 7454–7475
West Lebanon, ... 6769
West Manayunk, ... 7413–7475
West Point, ... 8426–8438
Wetmore twp., ... 8793,8794,8935–8948
Wharton mine, ... 6523–6525
Wharwell, J., house, ... 6245
Whileman, L. W., house, ... 7229–7231
Whisler, H., quarry, ... 5943–5954
Whitehall, ... 5044
Whitehall station, ... 6497
Whiteland station, ... 8078–8093,8104,8106,8108
White's quarry, ... 7597–7599
Whitney, N., ... 6401–6402
Whittaker's mill, ... 6075
Whitzel ore bank, ... 6555
Wiand's mine, ... 6414
Wieringer's house, ... 8540
Wilcox, J. M., farm, ... 8164,8165,8169–8171
Wildcat valley, ... 6604,6605
Willard, L., farm, ... 5331–5347
Willet bridge, ... 4532–4538
William Penn Furnace, ... 7244–7269
William Penn P. O., ... 7227,7228
Williams' house, ... 6159
Williams & Long, land, ... 6146
Williams T., ... 4972,4973
Williamsburg, ... 5112,6295,6296,6670

W. M. R. R., ... 8379
Williamson's land, ... 6291
Willing, J. B., print works, ... 5827–5844
Willow Grove, ... 5893–5900,6282
Wilson's bridge, ... 4474–4489
Wilson's dye house, ... 5878
Wilson Place, ... 6711
Wilt's quarry, ... 6720
Wilmath, ... 8792
W. & N. R. R., ... 6297,8591
W. & R. R. R., ... 8255–8299
Winch land, ... 6054
Winfield Furnace, old, ... 6805
Wining Cuisan farm, ... 6736
Winslow, G. W., farm, ... 8949–8951
Wise Mill Lane, ... 6233
Wissahickon creek, ... 6109–6281,7476–7502
Wissahickon piko, ... 6153,6159,6163–6281,6284
Wissahickon station, ... 7502
Wissahickon valley, ... 7503–7520
Wistar, T., ... 5751–5760
Wonnenberg, F., land, ... 5837
Woodbury, ... 6673,6679,6694,6695
Wood farm, ... 5774,5782
Wood's house, ... 5780
Wood's mine, ... 4272,4273
Wood, Robt., ... 4292
Woodside station, ... 5449–5453
Woodstock, ... 8575
Wray's Hill tunnel, ... 5016–5021
Wright, J., mill, ... 8556
Yardleyville, ... 5975–5009
Yeakle, C. A., land, ... 6138–6142
Yeakle, W. A., ... 6143
Yeakle quarry, ... 6143
Yerkes, C., land, ... 5454–5475
York Furnace, ... 6355,8581–8583
York Furnace bridge, ... 6352
York road station, ... 5981–5997,6830,6832
Young, S., farm, ... 7243
Zeigler, J., mine, ... 6515
Zeigler, D., mine, ... 6520
Zelgler mine, ... 6813,6815
Zimmerman, G., quarry, ... 6714

ERRATA IN REPORT O.

561, Blood red.
3947, (1701,) 5½ miles S.
3965, (1719,) Peach Bottom slate, Peters' creek, Lancaster Co.
3966, (1720,) Quartz.
3977*b*, (1732,) Stalactitic Limonite and Göthite, C. B. Grubb's mine, Chestnut Hill, Lancaster Co.
3977*c*, (1733,) Bomb of Limonite, do.
3985, (1741,) Dividing ridge, Lancaster Co.
3988, (1744,) Friable brown quartzose sandstone.
3990, (1746,) And quartzite.
3998, (1754,) Margarite.
4000, (1756,) Magnetite.
4001*b*, (1757*a*,) Serpentine and steatite, excavation S. W. of main shaft.
4002, (1758,) Polar magnetic iron ore.
4005, (1761,) Serpentine steatite, magnetite, etc.
4022, (1778,) Camargo P. O.
4025, (1781,) Limonite.
4031, (1787,) Williamsite.
4032, (1788,) Brucite and chromite.
4034, (1790,) Chromite.
4043, (1799,) Lancasterite or hydro-magnesite.
4049, (1805,) Decomposed serpentine.
4077, (1833,) Miles' Island, ½ mile S. E. of Black Friar Hotel.
4078, (1834,) 875 yards S. E. of Black Friars, Md.
4112, (1868,) After.
4120, (1876,) Ripidolite?
4126, (1882,) Clinochlore on chromite.

4131, (1887,) Hydro-magnesite or zaratite.
4133, (1889,) Limonite in part stalactitic and Göthite.
4135, (1891,) Stalactites with Göthite.
4138, (1894,) Stalactites of limonite, Chestnut Hill mine, Lancaster Co.
4139, (1895,) Oolitic limestone, Mason and Dixon's line stone.
4140, (1896,) Magnetite and chlorite, Ramsey's serpentine mine, Harford Co., Md.
4141, (1897,) Greenish quartzose sandstone, Williamson's Point, 1½ miles above Maryland line.
4142, (1898,) Chloritic vein intersecting quartzose micaceous sandstone, 600′ N. W. of the State line, C. and P. D. R. R.
4143, (1899,) Trap, Williamson's Point, 1½ miles N. of Md. line, left bank of Susquehanna river.
4156, (1912,) Epidotic rock.
4169, (1925,) Sent to Harrisburg for analysis.
4171, (1927,) do. do.
4175, (1931,) Chloritic rock with chloritoid.
4227, (1983,) 1 mile N. W. of Fairfield.
4229, (1985,) Quartz grains in epidotic matrix.
4235, (1991,) Chloritic rock.
4260, (2016,) 3 miles S. of Cashtown.

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